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OPHTHALMIC REPORTS.

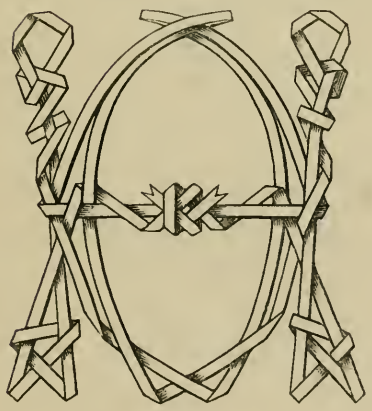
Ophthalmic Hospital Reports

AND JOURNAL OF THE

ROYAL LONDON OPHTHALMIC HOSPITAL.

Edited by J. F. Streatfeild.

1857—1858—1859.



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TO THE BINDER.

All the Plates should be placed at the end. The descriptions are given on four separate leaves, which should be inserted between the two first Plates, the third and fourth, and the fifth and sixth Plates, the description of Plate VII. being also placed opposite to it. Of the unnumbered Plates, the coloured 'Illustrations of Ophthalmoscopic Appearances' should be placed first.

OPHTHALMIC HOSPITAL REPORTS,

AND JOURNAL OF THE

ROYAL LONDON OPHTHALMIC HOSPITAL.

No. IV.

July, 1858.

It has been determined that the quarterly reports of operations at the Royal London Ophthalmic Hospital by the Registrar, shall not be continued in the form in which they have appeared. The formal record of all the cases was often tedious, and seemed to give too much importance to the practice of a single hospital. Henceforth, from the same source, a report on some one class of cases shall be given; a more attentive survey will be taken each time of the subject chosen, but it will be at the same time a less comprehensive sketch of the practice of the Moorfields Hospital.

COLOBOMA IRIDIS: HEREDITARY AND RARE CASES.

So many cases of coloboma iridis have come under my observation, that I believe it is a very common congenital defect, and one of much more frequent occurrence than the common harelip which is so much more unsightly and inconvenient that it is never unobserved or disregarded.

Coloboma iridis, as a family defect, has been often recorded, and since the last quarterly number of the Journal has been published I have had two opportunities of authenticating this occurrence.

In the first instance a boy was brought to the Royal London Ophthalmic Hospital, with simple conjunctivitis. For the same kind of ophthalmia he had been at the hospital before; he had also a moderate sized cleft of both irides in the common downward direction. The parents seemed quite aware of the peculiarity, and said he was, like others of their children, very "longsighted." I then went to their house, and found their statement true: his eldest bro-

ther had a similar defect in both eyes, and his youngest brother the same in one eye, and the symmetrical indication of the deformity in the other. The mother's father was said to have had the same defect in both eyes, and his brother also in both eyes, and her eldest brother was similarly affected, and his eldest son had the "long-sight" (as it was called in their family). This young man I afterwards saw, and found his irides (see case at the end) just as they had described, but of the incomplete form. In the four of these seven cases, I examined (and in the others, as well as I could learn the facts), the vision and power of accommodation of the defective eyes were good; the irides were grey, excepting in the case (at the end) last mentioned; they were all healthy, and had no other defects. The cleft iris seems to have belonged to the males of the mother's family. The mother herself had perfectly natural pupils, and four of her children (a boy and three girls) were also unaffected. The parents were positive that those of their children that had the "long-sight" had also a predisposition to "colds in the eyes," such as that for which the first-mentioned case had been to the hospital in the morning.

In the second instance, the patient I had an opportunity of examining was a gentleman who had the cleft in both irides extending in a direction down and inwards through the irides to the greater circumference, and perfectly alike in the two eyes. His irides had the usual markings, were brown in colour, and active. Vision was in all respects good, and there was no other defect known or perceptible. His sister and two cousins, he knew, had the same peculiarity of their pupils, and in colour of irides and the other particulars I have mentioned of his case, their cases, as he affirmed, resembled his own. His grandfather, he believed, had the same defect.

The extent to which the cleft, or even the indication of coloboma (see case at the end), may reach from the pupil towards the attachment of the iris (if it extends no further) is very variable. A young woman, who "never had anything the matter with her eyes"; and who had no adhesions of the iris in either eye, has been lately shown to me. The apertures of both pupils were conical; the right pointed down and outwards, and only extended from the axis, through about half the breadth of the iris; the point of the left was directed up and inwards, and did not reach further from the centre than in the other eye; but a little beyond the

apex of the cleft, the coloboma, in the *incomplete* form, was extended in the radial line, exposing the dark uvea, nearly to the greater circumference of the iris.

Double coloboma of the *same* iris has been recorded, and so have cases of *incomplete* cleft iris, but the case of the young man, above referred to, is peculiar in having combined these two characteristics, and in having no cleft of either iris but the symmetrical indication of it in *both* irides. The patient was, as I have related, one of a family of which several members had cleft irides; his sight was perfect, and his eyes had never been inflamed; his irides were rather deficient in the usual markings, of brown colour, and very active; his *true* pupils (ophthalmoscope) were both circular. The right iris had the indication of coloboma vertically downwards from the pupil, the dark fissure not extending through the uvea of the iris, and not further than midway between the pupilary edge and the greater circumference. The left iris had the double defect; the separation exposing the uvea in this eye was wide at the margin of the pupil, and extended below nearly to the greater circumference of the iris, in two divisions, one of which corresponded to the furrowed iris of the right eye, and the other was to its outer side. This mark of the iris had somewhat the effect of a deep impression of the letter W on its surface.

J. F. Streatfeild.

PUBLISHED CASES.

Case V.—Pemphigus of the Conjunctiva.

By Mr. White Cooper.

That peculiar vesicular eruption to which the term "Pemphigus" has been applied, seldom, I believe, involves the eye. A well marked example has, however, fallen under my notice, and is interesting, not only from its rarity, but from the permanent effects it has left upon the eye.

Amy S., aged twenty-four, became a patient of mine at St. Mary's Hospital in June, 1855; she was remarkable for her unhealthy chlorotic aspect, and nearly all her teeth were

black and rotten. She laboured under aphonia, speaking only in whispers, and had other symptoms of hysteria and debility; in addition to these troubles, she had for some weeks been afflicted with chronic pemphigus, large bullæ appearing on her arms and legs, and running through the usual course, attended with considerable suffering; a week prior to my seeing her, her right eye had become affected, a large vesicle having formed partly on the inner surface of the lower lid, partly on the eyeball; this had burst, and when I examined the eye the seat of the vesicle was indicated by a raw surface, secreting pus. Quinine and iron were prescribed, and a weak solution of nitrate of silver was directed to be applied to the eye twice daily.

When I saw her the following week, the right eye was better, but a bulla, the size of a large pea, presented itself on the left eye near the inner canthus; it was precisely such a vesicle as would be likely to arise from a scald, was filled with turbid serum, and its base was inflamed; it was punctured with a fine needle and a solution of nitrate of silver applied.

For three months this young woman attended at the Hospital, under the joint care of myself and one of my colleagues; during the whole of this time one or other of the eyes, together with other parts of the body, were the seat of vesicles, either incipient, complete, or passing away.

To combat this condition our ingenuity was severely taxed, and steel, bark in various combinations, cod liver oil, acids and alkalies, were prescribed without any material benefit. The application of cold water to the eye during the first stage of the vesicle, and the solution of nitrate of silver afterwards, seemed to afford most relief.

I lost sight of this patient until last January, when she again presented herself at St. Mary's, suffering from conjunctivitis. She stated that she had left London for the country in September, 1855, and that her health considerably improved from the change; the pemphigus gradually disappeared and she had since remained free from it; but the eyes presented very marked evidence of having been subjected to its influence. A person not acquainted with the history would have pronounced that some powerful escharotic, as lime, had been applied to them, for a series of frœnæ or adhesions existed as represented in the sketch.*

* Plate V., fig. 2.

Vide page 313

In the right eye a fleshy mass extended from the caruncle along the inner side of the lower lid nearly to the centre, and was attached by its apex to the surface of the eyeball close to the inner margin of the cornea: a row of minor adhesions existed between the eyelid and the eyeball as far as the external canthus which was itself bound to the eye.

The left eye presented a large frœna, exactly like a pterygium, extending from the caruncle and inner corner of the eyelid, to the cornea, on which it slightly encroached, and as in the right eye, a series of minor adhesions bound the palpebral conjunctiva to the eyeball nearly as far as the external canthus, which, however, was free.

The mobility of the eye was less impaired than might have been expected, and as happily the corneæ were but little involved in the adhesions, sight was unimpaired.

The conjunctivitis soon yielded to mild measures and tonics, and the patient ceased to attend.

Case VI.—Irideremia.

By Mr. Dixon.

Caroline P., aged 36, applied at the Royal London Ophthalmic Hospital in August, 1857. She had evidently suffered from chronic inflammation of the cornea, both were slightly hazy and traversed by a few tortuous veins. There was no general redness of the sclerotic, no intolerance of light, nor any signs of acute disease. Both upper lids drooped very slightly, giving the patient rather a sleepy and heavy appearance. She could not read ordinary type, but with the right eye, where the cornea was less hazy than in the left, she could make out large capitals. Opposite the centre of each cornea was a white speck, evidently situated in the lens, but neither the outline of the pupils nor the tissue of the irides could be distinguished. It seemed unlikely that such a degree of corneal haziness as permitted an opacity of the lens to be seen could, at the same time, prevent a view of the iris, and a more careful scrutiny convinced me that the irides were wholly absent. A moment's glance with the ophthalmoscope proved this to be the case, the whole area of the cornea presenting the reddish glow of an illuminated retina. Across this field a few corneal veins were seen ramifying, while, in

the centre, the black, nuclear opacity of the lens, stood out in bold relief, surrounded by a few widely separated striæ radiating from the circumference of the lens. When speaking of the irides as absent, I should observe that, behind the upper and inner margin of the left cornea, a very narrow scarcely traceable, brownish line indicated a rudiment of iris.

It seems singular, that with central and radiating opacities of the lenses, hazy cornea, and absence of irides, the patient still enjoyed a useful amount of sight, and her previous history is still more remarkable. She assured me that until the occurrence of the inflammatory attack a few years ago her sight had been excellent, and she was quite surprised at my having had any doubt on the subject. She went to school when ten years old, and took her place with other girls at the ordinary tasks and needlework, and so good was her progress, that at sixteen she went as housemaid into the household of a nobleman, remaining there and in another situation for eight or ten years. She stated that, as a girl, she never suffered any inconvenience from bright sunlight or candlelight, and saw distant and near objects equally well. Both her parents, and several brothers and sisters, had good sight.

The case is still (June, 1858) under treatment, and some improvement in the condition of the corneæ has taken place. The movements of the eyeballs have always been perfectly natural, no trace existing of that unsteadiness which, as far as I have seen, characterizes irideremia in infants.

Case VII.—Anophthalmos.

By Mr. Poland.

Some doubts whether, in these cases, absence of the eyes truly exists, whether there is ever a real want of development or non-formation of the organs themselves have been raised. Thus Walther* considers there is no true anopsia without acephala; he advances that it is to be regarded rather as a degeneration of the eye, such as is generally found, viz., a simple, red, undeveloped cellular mass, and would class these

* Lehre von den Augenkrankheiten, Band ii. s. 242.

cases under the head of Microphthalmos. But we have undisputed details of dissection, distinctly proving, not only absence of eyes, but also absence of optic nerves; thus at once determining that anophthalmos must be retained among the malformations.

The following case is one of absence of both eyes, as far as external evidence could be given. The child lived for some time, and was then lost sight of, so that in the event of death all chance of further investigating the contents of the orbit are frustrated.

Some eight or ten years ago, I was called upon by Dr. Lever to examine a new born infant respecting some malformation about the orbits and lids. The child was a male, born at full term; he was plump, well developed, and presented a perfectly natural conformation in every respect, with the exception of the lids. The orbits appeared somewhat smaller than usual; there were eyebrows over the superciliary ridges; there were no eyelashes, and the upper and lower lids were united along the whole extent of their margins, the union being marked by a reddish line; the contents of the orbits had a sunken appearance, seemed diminished in bulk, and the lids flattened.

A small aperture was made at the outer canthus, and a director was easily introduced along the inner side of the lids towards the inner canthus; the lids were then freely divided along the commissural line, and when separated, they were found to have but little adhesion to the contents of the orbit; there was no appearance of an eye or of a shrunken globe, for there was nothing to be seen or felt but an immoveable slightly raised mass of thickened conjunctival membrane; an incision was made into this, but it only exposed reddish areolar tissue; there was no evidence of any muscles. The head appeared to be perfectly natural. The child was seen after three or four months, and then did not seem to differ from other children in general health and performance of natural functions. There were three other children of the family, but all perfectly natural. The mother persisted in attributing the defect to a severe fright she sustained when in the fourth month of her pregnancy; she was suddenly attacked by a dog who had lost one eye, which had a very ugly appearance; it made a great impression upon her at the time and for some days after.

This case gives rise to many interesting questions, but unfortunately we are almost forbidden to draw any con-

clusions, as we have no positive proof that in this case there are no rudimentary organs; the eyes might have been fully formed and attained their normal condition up to the fourth month and then have gradually ceased to grow, and become lost in the areolar tissue of the orbit. On the other hand, there may be no optic nerves, and no eyeballs developed at all. Thus then, on the subject of mental impressions it is impossible to draw any deduction, for if there be no eyes and no optic nerve, an actual non-formation, the mental impression could have had nothing to do with it; if the contrary, then it is probable it may have had. There cannot be a doubt as to these effects of mental impressions; they have been ably argued, and many cases have been recorded.

Case VIII.—Congenital Patency of the Canaliculus.

By Dr. Bader.

This patient, an infant a year old, was brought to the Royal London Ophthalmic Hospital on one of Mr. Dixon's days, by the mother, for simple conjunctivitis of both eyes. The child was healthy, the mother said it had never ailed anything, had never before been taken to a doctor for any reason, nor had any kind of treatment for the eyes been adopted, before this time of her coming to the hospital.

There was some lacrymation which had not existed before the conjunctival inflammation, and the mother had never, until the present time, seen anything wrong about the baby's eyes. The lower punctum of the right eye was cleft, and the canaliculus entirely exposed from the sphincter to the caruncle; the edges of the *canaliculi fissure* were slightly and equally apart, pale in colour, and rounded as in hare-lip. There was no lacrymal obstruction of either eye, and the upper punctum of the right, and both those of the left eye, were perfectly normal.

ON THE

OPERATIONS FOR CATARACT

Among the Natives of India.

By Mr. William Martin.

(*Received June 27th.*—Ed.)

The natives of India seem always to have recognized cataract as a disease of an internal part of the eye, and not as savage nations suppose, an outward disease or blemish. There is also reason for thinking that the native practitioners of surgery have always recognized the disease as an obscurity or opacity of that which ought to be transparent; it is certain that from time immemorial native surgeons have been in the habit of removing the opaque lens from the axis of vision, and that the result as regards the restoration of sight, has been tolerably successful. Different methods of operating have no doubt been adopted at various times and places, but for an account of the manner generally in use among native practitioners, I need only refer to the excellent description in the article on British Ophthalmology contained in the British and Foreign Medico Chirurgical Review for January in the present year.

From their mode of proceeding, most unsatisfactory results have ensued, and should inflammation of the organ be produced, it is seldom the case that any active measures have been adopted. The treatment is generally of a simple soothing character, if any indeed has been resorted to. At the Calcutta Eye Infirmary patients are constantly presenting themselves, who have some time previously been operated upon for cataract by native practitioners. In a large majority of cases, the operator, after taking his fee, had not thought it necessary even to see his patient again. They applied for various diseases as the consequence of the ope-

ration or the subsequent want of treatment—iritis, closed pupil, inflammation of the internal tunics, ophthalmitis, etc., sometimes as a consequence of the displaced lens being found in the pupil or anterior chamber, etc. The latter was by no means an uncommon result, and I have many illustrations of such cases in my portfolio.

A good example of an injury which is sometimes brought about by the native method of operating is shown in plate V, fig. 3. In this case the depression has not been effected, but the upper part of the iris has been extensively divided, and an opening has been left, through which the lens protrudes, of double the size of the natural pupil, which, by the falling of that part of the iris below the rent, has become diminished, distorted, and rendered permanently incapable of performing its functions accurately. In this case I depressed the lens, and tolerable sight was eventually obtained. But in the great majority of cases in which the lens has become dislocated or misplaced by the efforts of native surgeons to produce depression and solution, there has arisen so much local and constitutional disturbance, that the sight of the eye has not been restored. The same may be said of the other results of these operations, the severe internal ophthalmia, &c. The native surgeon is either totally ignorant of, or indifferent to treatment for obviating or curing the immediate untoward effects of his operation. The patient also seldom applies for aid at an ophthalmic hospital until the mischief is irremediable. The want of success of the native operators would be greater but for the wonderful power which the constitution of the native possesses of supporting and recovering from injuries. All injuries, such as those of the head, that in the European will probably bring on inflammation, are often unattended in the native with any serious result, and amongst them are the various wounds of the iris, and the other accidents which are the immediate consequence of the native method of operating for cataract. It is also the case that from this difference of constitution of the two races, while the European with difficulty endures

wounds of the iris and internal parts of the eye, the native with difficulty recovers from a large wound of a non-vascular part like the cornea. Hence, with the native, the bungling operation for depression of the lens is often followed by tolerable success as regards vision, while the more scientific operation for extraction is often unsuccessful, simply from want of power in the system to enable the edges of the section to become united.

I shall now add a few remarks on my own method of operating for cataract among the natives in the Calcutta Eye Infirmary. Extraction has been rarely resorted to—my predecessors did not perform it—and were always of opinion that it would not give the patient the best chance of recovery of vision. I consequently only used it in exceptional cases. In the course of four years* I only operated by extraction on fourteen cases or a little above two per cent. of the whole. It is true that afterwards I operated rather more frequently in this manner, and met with more success, which was owing, I believe, to my adopting a plan of support to the system, always after and sometimes before the operation. Still I was not so successful as I hoped to be, and some of those cases which had the most promising appearance at the time of the operation failed altogether from want of union of the section.

The causes are to be found partly in physical conformation rendering the operation of extraction very difficult; his prominent brow, small sunken eye, with a proportionally large lens, as well as in the comparatively feeble constitution, which renders union of the section made in the cornea uncertain, and even rare in the case of the native of India.

Operations for depression and solution of the lens have been very frequent and successful, 72 and 71 per cent. respectively, having been ameliorated by this method. These operations seem particularly well suited to the native, in whom we find the lens in so large a proportion as 63 per cent. of a mixed consistence and as many as 23 per cent. of a soft or fluid character.

* See my "Return of Operations on the Eye." Calcutta, 1853.

In these operations I generally entered the needle posteriorly, and I have no reason for thinking that this method is likely to lead to any more unpleasant results than the anterior operations (through the cornea). The presence of the lens seems to be the only thing likely to bring on inflammation after the operation. I have always found that when after depression the lens has become absorbed, any after operation (to which I may have resorted for removing opaque capsule, etc., in which there was as much wounding of the tissues of the eye, and generally more manipulation required) has been less often attended with unpleasant consequences than the previous operation, as a result of which the lens had been for some time lying in the interior of the organ.

The form of operation I have found most successful with the native is a combination of division with depression. The operation for division has been for some years more frequently resorted to for cataract than any other in my practice, both as a preliminary proceeding and as the principal operation for individual cases. Its object is to divide a portion of the lens near the circumference, by making an opening in the capsule sufficiently large to admit the aqueous humor, in order that solution may be effected to a certain extent; the lens being left in its position, and the parts with which it is connected being undisturbed, or as little altered in their relative position as possible. A needle is entered through the tunics posteriorly, and made to penetrate the lateral part of the capsule, and the substance of the lens at its circumference. It is then rotated a few times with a view of breaking up the lens, and being then withdrawn the operation is concluded. This operation for division has the following advantages:—

1st. That it causes no alarm or irritation to the patient.

2nd. By its means an almost immediate improvement of vision often takes place.

3rd. Scarcely ever is there any inflammation succeeding it.

4th. It assists us in our diagnosis (of so much importance with regard to future proceedings) as to whether the lens is soft or hard, whether it has a solid nucleus, with a soft circumference or not, etc.

5th. The anterior hemisphere of the capsule is untouched, and consequently does not become opaque.

6th. The aqueous humor is allowed access to the lens, without the lens being separated from its connections.

This operation is the one generally performed in the Calcutta Eye Infirmary for cataract, both as a preliminary and as a principal operation. In the greater number of cases of the disease as it is seen among the natives of the country, the cataract is of a mixed consistence, somewhat harder than jelly in a great part, if not all, of the lens substance.

This operation is often the only one that is found necessary, but in other cases, particularly if the nucleus is hard, it is found necessary to operate again for division, or by depression of that which remains. With regard to a subsequent operation for depression, I believe that the preliminary is of advantage by getting rid of the softer parts of the lens, which by their lightness, and by the bulk of the lens itself, cause it often to rise after the depression. The softer circumferential parts being removed by absorption, enables the less buoyant mass to remain in the position into which it has been depressed. There is also diminished risk of the smaller body pressing upon and doing injury to the internal tunics.

There are cases in which it will be found by no means sufficient to have made a small aperture in the capsule, incised the lens, and admitted the aqueous humor; it will be necessary to divide the lens more extensively, and lacerate the capsule also more freely. In many cases of the mixed form of cataract it will be enough to do this, although the operation may require to be repeated once or twice; but, in

a certain proportion we find that the opaque lens will not undergo the process of absorption, at any rate if it be left *in situ;* whereas if the remainder is depressed, it will, for the reasons above mentioned (after the preliminary operation) remain below the axis of vision, and if it do not become readily absorbed, will, at any rate, give rise to no irritation. In such cases, we may, with confidence expect the patient to recover good vision; whereas in many cases, particularly when the native practitioners have operated, we find that the lens, bulky as it is often in the native's eye, compared with the posterior chambers of the globe, having been at once depressed, has pressed upon the retina, or the iris, and done irreparable mischief. This I have found very rarely to have happened in my practice, where depression has been employed after even one attempt at division, in the manner above reported.

In a certain but not large proportion of cases, treated by this simple method, I have found no other operation necessary. The patient has attained good vision; but, in many cases it has had the effect of slightly improving sight, in a few days. By the time a month has elapsed, I have often found that a patient who had had hardly a glimpse of light can see much more than before, or whereas he could not previously see objects can make them out distinctly. As soon as it has become evident that the improvement is not progressive, I have proceeded to repeat the operation, or adopted other means as may be found necessary. Often the patient seems to be so well satisfied with the result of the simple operation, that he does not stay to have any thing further done.

There is another advantage connected with this procedure: this is, that if it be carefully done, there is not a possibility of the nucleus of the lens becoming dislocated. Sometimes the nucleus is hard or sufficiently solid to cause great mischief, if lying in the aqueous chamber, but by this method, however much the soft parts may become removed

by absorption, the nucleus of the lens cannot escape through the small aperture of the capsule; on this account the operation is not contra-indicated in cases in which the nucleus may be thought to be hard, as at any rate the bulk of the lens will be reduced; and that I look upon as a point of great importance, as regards the natives of India, with whom the more perfect operation of extraction is, as far as my experience goes, the least successful of any. A small body, even if hard, will lie in the posterior chamber without giving rise to irritation, when a larger one, although less solid, would cause destructive inflammation of the organ. Should the whole of the lens not become absorbed, as a consequence of this operation, I then proceed to depression. My method of doing this is as follows :—

With a needle curved at the end, I enter it behind the cornea, inclining the point (the concavity of the needle forwards) towards the centre of the eye until it has reached the centre of the posterior hemisphere of the capsule; I then lacerate freely the capsule, making the point pass downwards, and round the lower part of the lens, so as to bring it in front. In this manœuvre the concavity of the instrument is gradually made to turn, so that at last it looks backwards. This being effected, I make the convexity of the needle press the lens downwards and simply depress or recline the cataract according to circumstances; my chief care being to avoid placing the lens altogether below the lower margin of the pupil, and cause injurious pressure, or wounding the iris with the needle. Sometimes it may be necessary to perform operations for removing opaque capsule, but in the great majority of cases the free division of the capsule in front, below, and behind, is not only sufficient to set free the lens, but to prevent the membrane being any obstacle to vision subsequently.

The combination of the operation for solution and depression here described I consider as that which is best adapted for the native constitution, and the amount of success found to result from it warrants the conclusion to which I was led

in the first instance by my own observation. I believe I was induced to try it more extensively than I otherwise might have done, in consequence of a favourable opinion of the plan having been given by the late John Dalrymple.

PROTRUSION OF THE EYEBALL.

(*continued.*)

By Mr. Poland.

(*Received April 10th.*—Ed.)

I have on this occasion to offer three interesting cases of protrusion of the globe from affections of the eyeball itself, belonging to the second set of causes in the classification at page 22 of the "Reports."

Case IV.—Melanosis of the Interior of the Eye; suddenly rapid extension, attended with inflammatory mischief; intense pain; great protrusion; excision; relief.

P. O.—aged 40. A fat unhealthy looking man. Presented himself on February the 10th, 1858, at Moorfields, suffering most intensely from what was supposed to be acute ophthalmitis in the right eye. His agony was so great, and his condition so prostrate, almost amounting to faintness, that little could be elicited, so as to form any opinion of the nature of the disease.

The left eye was normal. The right eye had the following appearance:—The lids were œdematous and of purplish hue, and widely separated by chemosed reddened conjunctiva; the eye was protruded between the lids, and appeared larger than natural; it was tense, and exquisitely sensitive to the touch; the cornea was transparent: the anterior chamber small; the pupil, a mere rim, was dilated by a deep yellow effusion, tinged with blood, occupying its

area. This was accompanied with a sense of throbbing and extreme tightness, with pain in the forehead and temples. He was very feverish, had had no rest for several nights, and had lost all appetite. From the aspect and examination of the eye, as well as the condition of the man, it was conjectured that the case was one of acute suppurative ophthalmitis.

The man was admitted into the Hospital, chloroform at once administered, and the eye excised. There was some little difficulty in the operation, owing to a plastic effusion of lymph on the outer surface of the sclerotic, beneath the insertions of the oblique muscles, binding them down firmly to some extent.

Little or no bleeding followed; the swelling of the lids rapidly subsided; and the man was able to leave the Hospital in the course of the week. Shortly after this, he was allowed to wear his artificial eye; he rapidly improved in health and spirits, and his general appearance underwent a remarkable change for the better.

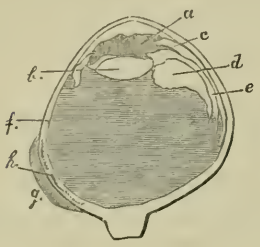
We were now able to learn something of the history of the complaint:—He stated that the right eye inflamed spontaneously, about five years ago; that vision gradually disappeared under repeated and successive attacks of inflammation, so that he became blind at the end of the first year. He remained blind, and the eye continued in a passive state for four years; when, in January of the present year, the eye suddenly became very painful and inflamed, but this subsided, and shortly afterwards he had another attack, attended with fulness of the eye. This he was able to bear without applying for any relief; but, a week before admission, the inflammation and swelling came on more severely and rapidly, rendering him at times almost distracted.

This additional piece of history gave no further clue to the diagnosis of the disease.

The following is the report of the examination of the eye by Dr. Bader:—

"The disease consisted of a rapidly developed melanotic

mass in the interior of the eye. The growth distinctly originated from the choroid near the yellow spot, and from thence, spreading forwards, detaching the retina, destroyed it, as also the greater part of the choroid and ciliary processes. The melanotic mass was a smeary, soft, chocolate-coloured substance, composed of transparent, branching, albuminous (?) tubes, and large, caudate, nucleated cells; this, the framework, was surrounded by oil globules, blood corpuscles in different stages of decomposition and pigment débris."



a Organized lymph.
b Translucent lens.
c Iris and ciliary processes.
d Space filled w th yellowish transparent fluid, and lymph deposited around it. This space appeared to be the remains of the vitreous chamber.
e Retina.
f The melanotic mass.
g Exudation.
h Discoloured and thinned sclerotic.

Remarks.—This case is inserted more especially with a view of shewing the microscopical and pathological conditions of an active melanotic mass, which had undergone no decomposition, the examination having been conducted immediately after the operation. It gave a very clear view of the disease, which is not always to be obtained; for a few hours only are necessary to convert the structures into a pulpy mass. It tended to show the dichotomous growth of melanosis, being very similar to the growth of parasitic fungi, and cellular plants.

Melanosis of the eye is generally a secondary disease, yet we are warranted in excising the organ so affected, although the primary and original disease is still extant in one or more parts of the body. We constantly observe in the study of this disease that its chief and favourite seats are in the skin and glandular organs, and that it only affects secondarily the eye, brain, and other structures. Hence the reason why Dalrymple and others denounce the operation as unjustifi-

able. However, when a patient is suffering intense pain from a local cause, no matter what that cause may be, the surgeon is perfectly warranted in removing the part affected. Removal of the eye is an operation attended with no hæmorrhage whatever, and no after ill-effects; it is simply the division of the conjunctiva around the cornea, the division of the insertion of six muscles, and the cutting through of the optic nerve; only small vessels are thus wounded, and the relief is instantaneous.

Melanosis of the eye is generally slow in its progress; it advances steadily and surely, but destroys the organ, and attaining a large size, causes its protrusion. This may occupy a lengthened period, and the patient generally succumbing to the disease in some other organ before it attains any serious moment in the eye itself; from first to last it may be unattended with pain. In the case related we have an exception to the ordinary rule, for its growth was commenced with rapid development, and attended with excruciating agony; its real nature was in this case obscured by the disease being confined to the interior of the eye, and by the communicated inflammation to the tunics and iris, lymph being thrown out in the area of the pupil.

Melanosis may attack the exterior of the eye. In the "Pathological Transactions for 1857," Mr. Curling relates a case of melanotic tumor growing from the outside of the eyeball, and remarks:—"I know of no recorded case in which this disease had sprung from the outside of the sclerotic." He found a considerable tumor there, but without further implicating the globe, as in the present instance. During the summer of 1857, a much more remarkable case presented itself to our observation. A man, about 50 years of age, applied to us at Moorfields. He had come four hundred miles, and requested advice only, as he wished to return the next day into the country. He had a melonotic growth, about the size of half a walnut, upon the outer side of the left eye, to which it was firmly attached. It had been slowly growing for several months, and was attended

with no inconvenience. It evidently sprung from the exterior of the sclerotic, but it seemed to be perfectly independent of the choroid and retina. The eye was normal in size, the cornea was bright and transparent, the iris natural and perfectly active, the humors clear, and vision as good as in the other eye. A portion of the growth was snipped off for microscopical examination, which at once confirmed the external evidences of the affection.

The growth could not possibly have been removed without excision of a very large portion of sclerotic, which would thus necessarily destroy the eye: hence, if any operation was to be performed at all, it must have been at the expense of the eye itself.

The man would not undergo the operation; he only came to ascertain the real nature of the disease.

Case V.—Tubercular deposits in the interior of the eye; slow progress; protrusion and enlargement of the eyeball; cessation; gradual recession; atrophy of globe.

The following case is one of a type not unfrequently met with in ophthalmic practice, at least it is one that has fallen to my lot to have observed many times; and it serves to show how disease, in the shape of an adventitious mass, may destroy an important organ, and, having completed its destruction, may become gradually removed, so as to leave but little trace of its previous existence, excepting a withered and destroyed capsule.

J. B., aged 4. A delicate, strumous-looking boy became an out-patient during the summer months of last year, on account of defective vision in the right eye, with occasional lacrymation and irritation, causing him at times to rub the eye. The child had a remarkably clear complexion, and had bright blue eyes. There was little or no intolerance of light, and scarcely any lacrymation; the pupils were active and natural, and there was no external evidence of any disease.

A drop or two of the atropine solution was put in the right eye, and when the pupil was sufficiently dilated, the eye was carefully inspected, both without and with the use of the ophthalmoscope. It was then discovered that there was a yellowish deposit in the fundus of the eye, about the size of a large pin's head, situated on the outer side and at some distance below the entrance of the optic nerve; the retina was raised over it. The precise nature of this deposit was a matter for speculation; whether it was simple fibrinous effusion, tubercular deposit, or cancerous degeneration. The child was ordered small doses of the iodide of iron, and an occasional mercurial aperient; and it was determined to watch the case closely and observe the progress and phases of this deposit, and to act as might be most beneficial. This case was under observation for some months, and a more perfect specimen of this disease, slowly advancing, could not have presented itself. At first the retina became raised gradually, and the increasing deposit insinuated itself between it and the choroid and sclerotic, and advanced steadily forwards, bulging the iris and lens forwards, then setting up irritation and slight ophthalmia, and afterwards followed by an increasing size of the eye itself. This deposit being carefully studied during its phases of aggrandizement was pronounced to be harmless, because of its exceedingly slow progress. The child was ordered cod-liver oil, and eight drops of the liquor cinchonæ of the hospital three times a day, and good nourishment, but not in excess. The different important structures had become slowly involved, the vitreous humor, and then the lens could no longer be discerned; the eye began to enlarge and protrude; the iris bulged, and the cornea became opaque; the sclerotic also became thinned and expanded.

The amount of protrusion was not sufficient to prevent the lids from closing over it, and as it soon ceased to progress, and became perfectly stationary, it was no longer a source of anxiety as to its possibly malignant nature. The eye being perfectly destroyed, and regarded as a foreign

body liable to excite mischief in the sound eye at some future period, it was proposed to remove the globe. The parents, however, would not consent, so that we were enabled to watch the termination of the case. The eye remained in a stationary condition for about ten days, when it was observed to be less prominent and softer. The cornea being now opaque, the internal changes could not be investigated. The eye gradually diminished in size in as slow a manner as it had become enlarged, so that, at the end of two months, it had shrunk to a button-like stump, without any evidence of natural structure left. The child wore an artificial eye, and gained a plump and ruddy aspect.

Remarks. — The eye, like other important organs, is liable to be attacked by tubercular depositions, but this, fortunately, is not of very frequent occurrence. These deposits may take place in the iris, at one, two, three, or more spots; they seldom attain activity or reach any large size, but they generally destroy the use of the organ by causing degeneration of the iris structure, and in most cases atrophy of the globe. Several patients thus affected have come under my notice during the past few years; the disease is generally associated with scrofulous enlargement of the cervical and other glands, and occurs in young delicate children. They simulate and may be wrongly attributed to syphilitic deposits, which are not unfrequent in infants and children.

These deposits, however, generally originate under the retina, on the inner aspect of the choroid, and become there freely fed by its vessels. The growth may be slow or rapid; it may terminate in resolution as in the case adduced; or it may suppurate, producing hypopyon or a suppurating globe; again, it may grow freely, and form a large mass extending on to the face. Such an instance occurred many years ago in the wards of Guy's Hospital. A little girl, about 5 years old, was admitted for stone in the bladder. Mr. B. Cooper dilated the urethra and attempted extraction of the calculus, but finding it of an enormous size, he divided the urethra

to the requisite extent, and succeeded in removing the calculus. The child suffered a good deal after the operation, and had a protracted convalescence. Six weeks afterwards, it was observed that the left eye was rather fuller than the other, and the pupil more dilated. Attention having been drawn to it, a brilliant metallic lustre was discovered at the bottom of her eye, which, on closer inspection, appeared to be a morbid deposit. Of course the question as to its being of a strumous or a cancerous nature was raised; it was in favour of the latter, inasmuch as it progressed very rapidly. The eye soon became of enormous size, and protruded on to her face, causing much uneasiness and pain. The parents had, in this case also, refused any operative procedures. The tumour then began to slough and soften; much discharge and débris continued to come away until the entire mass disappeared; the whole had separated and the parts gradually shrank, and left a sunken orbit. The child when seen some 6 or 7 months later, was perfectly well.

Case VI.—Acute and sudden inflammation of the eye; Vision destroyed in twenty-four hours; threatening suppuration; partial protrusion of globe; gradual subsidence, and convalescence with loss of the organ.

The following interesting case came under my notice through the favour of Dr. James Andrews, of Camden Town. The previous history is well described by him in a note to me on the subject: in which he says—

"I regret that I kept no notes of this case, and I am therefore only able to supply such meagre information as memory will furnish.

"The subject of your inquiries is, as you will remember, a strumous child, eighteen months old; he had purulent ophthalmia for the first two or three weeks after his birth, which was perfectly cured. During the first six months of his life he suffered from sub-acute bronchitis, which left vesi-

cular emphysema; he was always delicate, and was frequently attended by me for chest affection.

"On March the 15th, I found my patient labouring under what I considered to be the premonitory symptoms of measles. There was heat of skin, quickened pulse, cough, suffusion of the eyes, and a little redness of the skin, etc. I am able to say positively that vision was good and that nothing abnormal could be observed in either eye. Measles were very prevalent about this time, and many deaths had occurred in the Pancras Workhouse among the young inmates there.

"On the 16th the above symptoms were somewhat aggravated; patches of erythematous eruption appeared upon the face, left arm, and lower extremities; the rash was not elevated, but in the centre of some of the best marked there was what looked like an incipient vesicle.

"The face and both eyelids were a good deal swollen, and there was lacrymation; both conjunctivæ were injected, but no other morbid appearance was observable.

"He was ordered warmth, salines, bland diluents, and a warm bath.

"On March 17th, 12 at noon, the rash had almost entirely disappeared. The febrile symptoms had diminished greatly. The child was irritable, but evinced no indication of great suffering. The puffness of the lids had subsided a good deal; that of the right entirely. Upon examining the left eye I found the sclerotic and conjunctiva injected, and for the first time observed the cornea to be hazy and the aqueous humor to be turbid; the iris appeared of bluish-green colour and was slightly irregular; round the eye I applied belladonna, and ordered hydr. c. creta. In the course of a few hours the eye became rapidly worse."

"Such is Dr. Andrews's circumstantial detail of the case. It was also confirmed by the parents' account, which stated positively that the eye had been to all appearances quite natural before the evening of the 16th. The first indication of anything the matter with the eye was observed

early on the morning of the 17th. I saw the case about nine o'clock on the evening of the same day. The child was restless; could not bear the light, and closed the eye almost immediately. On separating the lids, which were rather swollen, it was observed that there was much injection of the conjunctiva; the cornea was hazy, and through it could be indistinctly observed a greenish-coloured iris, which appeared irregular, and the pupillary area blocked up by yellow lymph. There was no hypopyon; the eyeball appeared distended and was tense and tender to the touch; it seemed somewhat larger than natural. The case was one of acute inflammation of the internal structures of the eye with effusion of lymph. The child was exceedingly delicate and very low, insomuch that it was feared there would be acute suppuration of the globe. He was ordered six drops of the liquor cinchonæ every six hours, the extract of belladonna to be continued around the eye, and an occasional purgative of hydr. c. creta c. rheo.

On the 18th the eye was found much increased in size and bulging forwards, exquisitely tender and tense: the lids were very much swollen and of a purplish livid hue: the cornea was so hazy that further investigation was impossible. It was now a consideration whether there was effusion behind the iris, or in the orbit behind the eyeball; the latter was negatived by the history and by a careful examination of the orbit; and it became a question as to operative procedure for relief of the distended pressure within the globe. The child's health and strength had somewhat rallied, and it was therefore deemed prudent to apply one leech to the lower lid, carefully guarding against any excessive hæmorrhage, and to wait the issue on the following day. The extract of belladonna was to be discontinued, and fomentations of poppy heads to be used. The parents, being anxious about the child, requested a further consultation, and Mr. Alexander, senior, accordingly met Dr. Andrews and myself on the 20th. There had been no further enlargement or protrusion of the eye; the lids had resumed a more

natural appearance, and it was agreed that it should be left alone; that the child should continue the bark with the addition of a little soda and rhubarb; and have a fomentation of conium and elderflower water; another leech was also to be applied. The eye was considered to be perfectly destroyed as regards visual powers.

On the 23rd I again saw the case, and a marked improvement was found to have taken place; the lids had become natural; there was no photophobia and the child could open the eye. The globe was less prominent and less distended; the cornea not quite so hazy, but the iris still greenish and blocked up by lymph in its pupillary area. The child had gained strength and was more cheerful. Considering the disease to be on the wane, I ceased visiting the child, and requested Dr. Andrews to send me an account of the ultimate result; prognosticating that the eye would shrink. He writes as follows:—

"On the 25th there had been no unfavourable symptoms. The effused material was gradually undergoing absorption, and the inner margin of the pupil could be seen, well-defined, although still contracted; and the iris was still of a greenish hue; there was less injection of the sclerotic.

"On the 30th there had been gradual and progressive improvement; the globe was not shrunk, and was completely under control of the muscles. The cornea was getting clear; the iris was still contracted and not obedient to light, and was of a deeper blue colour than that of the sound eye. The globe did not feel soft or boggy. He was now ordered cod-liver oil twice a day.

"April 4th, the general health much improved. The cornea had cleared, but otherwise the eye remained the same." About three weeks after this the eye began to waste, shrink, and become atropic, which continued slowly proceeding until the organ lost all trace of natural structures.

Remarks.—Such is the outline of this remarkably acute case, and it is recorded in detail, both as regards the pre-

vious history and progress, because the whole facts are thoroughly authenticated, leaving no doubt as to the rapidity and severity of the affection. It has fallen to my lot to have witnessed two, if not three, such cases within the last few years; but in neither of these did effusion take place before the third day; in two, acute suppuration resulted, with sloughing of the cornea, evacuation of the contents and shrinking of the globe; the other case was lost sight of, as operative measures had been proposed.

The cases came under the category of "*Ophthalmia interna idiopathica*" of Beer, the "*Ophthalmitis phlegmonosa*" or *ocular phlegmon* of others, and the "*Acute retinitis*" of Mackenzie; and, on turning to the pages of the latter author, the case I have given will be found to correspond very much to the symptoms there given. The term, however, is not a happy one, and I should certainly prefer the "*Ophthalmitis phlegmonosa*" of others, as a more expressive name for the disease. The commencement of the affection in this child is peculiar; for a faint ill-defined eruption, attended with febrile symptoms was the precursory attack; this suddenly disappeared, and the eye was immediately involved, and vision destroyed within twenty-four hours, as if the violence of the disease had centred itself in the organ. The case did not suppurate as is generally observed and as was anticipated. This I have no doubt whatever was owing to the immediate use of the bark and nourishment and careful withholding of mercury and depletion. The child was weak enough already, and if mercury and depletion had been resorted to, suppuration of the globe would have inevitably resulted. Thus in treating inflammatory disease, we ought always to bear in mind the condition and powers of the patient. For example, in most cases of iritis mercury and depletion may be useful; but when it attacks a patient in a state of salivation or one of very low powers, tonics must be had recourse to.

Contributions to the Morbid Anatomy and Pathology of the Choroid and Retina.

(*continued.*)

By Mr. Hulke.

(*Received June 30th.*—Ed.)

In a paper contained in the second number of this journal I described some of the most common morbid appearances which are met with in the choroidal epithelium and in the elastic lamina which supports it. I now propose to add a few more words on colloid disease of the choroid. I have already described the appearances which this disease of the elastic lamina presents in its various stages; I have alluded to the labours of Donders and Heinrich Müller; and I have mentioned the explanations which these distinguished physiologists have given of the origin of this affection. The examination of a very large number of specimens inclined me to concur in the main with the view taken by Heinrich Müller that colloid bodies consist primarily and essentially in an adventitious thickening of the elastic lamina of the choroid, and that the hexagonal epithelium was only secondarily affected. But at that time I had not been quite able to satisfy myself of the precise relation of the colloid bodies to the choroidal capillaries, and this difficulty will be appreciated by those who are acquainted with the extreme tenuity and transparency of the elastic lamina, which alone intervenes between the epithelium and the capillary network, an intricate web of vessels which in uninjected specimens is by no means an easy object of study. Of the many eyes which I have artificially injected, I have never found one affected with colloid disease, but I have quite recently had the good fortune to examine an eye immediately after its removal during life, in which the choroid was most thickly dotted over with

colloid globules. I was already aware from former observations that the larger trunks of the choroidal vessels passed without interruption beneath the colloid globules, even when these had acquired a very considerable size; but I now, for the first time, saw the blood corpuscles gliding along the capillary vessels in continuous unbroken columns beneath (that is, to the outer side of,) the colloid globules, a phenomenon which completely established their respective positions, and one from which we may conclude that these vessels are not primarily affected, although at a later period they may become implicated.

In the paper already referred to, I mentioned that we are unacquainted with any signs by which the presence of colloid disease of the choroid in its early stages can be detected with the ophthalmoscope during life, although at a more advanced period the ragged, patchy appearance of the surface of the choroid which is produced by atrophy of the epithelium will assist us in the diagnosis.

Several questions of interest present themselves in connection with this disease. Is vision impaired in the early stages; is it an acute or chronic affection; in what class of cases does it most commonly occur; at what period of life is it most frequently found?

At an early period, whilst the hexagonal epithelium of the choroid still presents an unbroken sheet—whilst the colloid globules are still so minute as not to interrupt the regularity of the inner surface of the globe—it seems not improbable that the sight would remain unaffected; but when the fundus of the globe presents an uneven surface, and when atrophy of the choroidal epithelium (with which the rods and bulbs of the retina are in intimate relation) has occurred, vision must be seriously diminished if not wholly lost. I have found colloid disease of the choroid so frequently associated with inflammatory changes, that I am inclined to consider inflammation as a cause of these adventitious thickenings of the elastic lamina. Colloid changes are almost always present in those shrunken globes which have been

repeatedly inflamed, and in several instances of acute traumatic inflammation I have also found the elastic lamina of the choroid thickly sprinkled with colloid globules. Colloid disease is certainly not simply a senile change, and although more common in adults, it also occurs in quite young persons. It may affect one eye only as I had an opportunity of verifying only a short time ago in a case of pyœmic inflammation of one eyeball. The sight of this eye had been previously good and the inflammation began about twenty-four hours before death. Coexisting with the appearances which are present in the early stages of suppurative inflammation of the globe (which I shall take an early opportunity of describing) were very numerous colloid globules sprinkled over the whole inner surface of the choroid, but a most careful investigation failed to detect any disease in the other eyeball.

Observations on the Growth of the CRYSTALLINE LENS, And on the formation of Capsular Opacities.

By Mr. Hulke.

(*Received June 30th.*—Ed.)

The crystalline lens is contained within a highly elastic and perfectly transparent membranous capsule, which forms a shut sac, everywhere continuous, although on account of certain peculiarities, the anterior and posterior hemispheres are, by a loose way of speaking, often called the anterior and posterior capsules respectively, just as if they were distinct structures. The capsule of the human lens is perfectly homogeneous and glassy, without any traces of structure, but the torn edges of the thicker capsules of the larger ruminants sometimes display parallel lines suggestive of

lamination. There are, also, upon the human capsule certain marks, which some persons have considered indicative of its anatomical construction, but these marks do not really bear this interpretation. The delicate converging lines which stretch from the attachment of the suspensory ligament for some distance, towards the anterior pole, and the similar but fainter lines upon the outer surface of the posterior half of the capsule are due to the peculiar arrangement of the fibrous cordage of the suspensory ligament.

THE INTRA-CAPSULAR EPITHELIUM OF THE HUMAN LENS.

It is commonly stated in anatomical works that the capsule of the crystalline lens is lined by a delicate layer of pavement epithelium, which forms the medium of that adhesion which naturally exists between the healthy lens and its capsule. The capsule being a perfectly closed sac, the nutrition of the lens is effected by osmotic currents through the delicate membrane, and the nucleated epithelial cells appear to take an important part in the elaboration of the nutritive matter; the lenticular fibres are also developed from these cells,—a fact which, I believe, was first taught by Mr. Bowman in his lectures on the eye, delivered at the Moorfields Hospital in 1847, and which has since been confirmed by Kölliker,* who has described at great length the structure of the lens, and the development of its fibres. Having, myself, enjoyed peculiar and unusual opportunities of obtaining recent healthy and morbid lenses for examination, I have been enabled to follow with some minuteness the various stages of the process. Most of the drawings which illustrate this paper have been taken with the camera-obscura.

The intra-capsular epithelium does not line the whole inner surface of the capsule, as was formerly thought to be the case, but it has been ascertained by Kölliker that its presence is confined to the anterior hemisphere, in different

* Kölliker, Microscop. Anat. B. ii.

parts of which it presents very different appearances. For convenience of description, I shall divide the anterior hemisphere of the capsule into a central region, the area immediately around the pole, and a marginal region, the zone stretching from the central region to the edge of the lens.

In the central region, the epithelium is a delicate pavement formed by a single layer of large polygonal cells joined edge to edge; the cells are conspicuous for their sharp outlines, and each contains a large circular nucleus, which in turn encloses two or three small dark dots or nucleoli. The nuclei are remarkable for their uniform size and regular circular outline: they occupy the centre of the cells, and each nucleus is separated from the neighbouring ones by a space about equal to its own diameter.

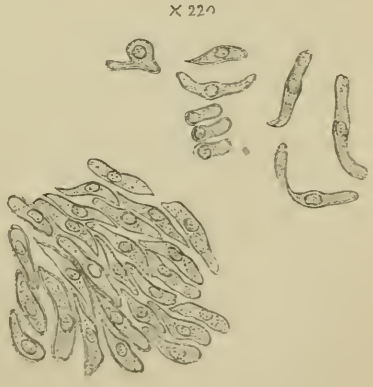
Intracapsular Epithelium, Central Region.

In the marginal region, the epithelial cells are much smaller and much more closely packed together. The nuclei are smaller; they have a less regular outline, and are separated by extremely minute intervals,—indeed, they are sometimes almost in contact, and the walls of their containing cells can hardly be made out. The epithelium in this region is not arranged as a simple pavement, but rather in the form of a bed, in which the cells are crowded in superimposed layers; the bed is not prolonged beyond the edge of the lens, and the inner surface of the posterior hemisphere of the capsule is void of epithelial lining. The transition from the large polygonal cells of the central region to the small crowded ones of the margin is not abrupt,—every possible gradation occurs between these extreme forms. This epi-

thelial bed at the margin of the anterior half of the capsule is the matrix of the lens, in the young it contains free nuclei, and it is the growing part in which the lenticular fibres are formed by the growth and metamorphosis of the cells; young subjects furnish the best objects for the study of these changes.

Intracapsular epithelium of the marginal region, constituting the matrix of the lens.

In the growing lens the cells of the matrix become elongated in opposite directions, and this lengthening proceeds until, at last, the epithelial cell has become a flattened band, which ultimately assumes the form of the perfect lenticular fibre.



Cells of the matrix undergoing transformation into lenticular fibres.

As the cells of different layers become elongated, an imbricated arrangement takes place, and the growing fibres are disposed in different layers, in which those of one layer alternate with those of the other layers immediately in contact with it.

The position of the matrix at the equator accounts for the extension of the lens in this direction, and explains to us how the spherical lens of the infant in the process of growth becomes flattened and expanded, until it finally assumes the biconvex discoid shape of the adult organ. The arrangement of the mesial planes of the lens in man and in the lower animals was several years ago described by Mr. Bowman*, who contrasted the simple tripartite plan, which obtains in the human fœtus with the highly complex arrangement which the adult lens presents, and inferred that the multiplication of the mesial planes outwards is a process necessary to the expansion and flattening of the organ, and that this takes place by a deposition of new fibres on the old.

It will have been seen that this account of the development of the fibres of the lens coincides with that given by Mr. Bowman and by Kölliker. It is but right that I should mention that these views differ very widely from those held by several other observers, amongst the more recent of whom I may mention Testelin, who, in several late numbers of the "Annales d'Oculistique," has described with great minuteness the structure of the lens and the evolution of its fibres. He describes six kinds of cells and fibres differing from each other and occupying different planes; but whilst I admit that fibres taken from the superficial parts, and from the centre of the lens respectively, possess certain peculiarities, there is really no abrupt transition from the one to the other set of fibres, and I cannot help thinking that Testelin has made a needless subdivision; moreover, some of his illustrations lead me to suspect that he has depicted as natural conditions appearances which have been produced arti-

* Lectures on the parts concerned in the operations on the eye, etc. London, 1849.

ficially. Testelin describes a layer of cells, the corpuscles of Morgagni, distinct from intracapsular epithelium; these Morgagnian corpuscles are transformed into a second set of cells, the embryonic vesicles, within which the evolution of the lenticular fibres takes place. Each embryonic vesicle contains one or more elementary corpuscles, the germs of the lenticular fibres, the corpuscles enlarge, undergo a spiral cleavage, and are thus changed into ribbon-like bands, spirally coiled within the parent cells. At a subsequent stage the parent cells are ruptured, and the spiral bands set free immediately uncoil themselves, and so come to resemble perfect lens fibres. According to this view, the development of the fibres of the lens takes place in an endogenous manner, and the intracapsular epithelium, has no share in the process. But how are we to explain the appearances which M. Testelin describes? The cells and globules which are commonly found on the surface of the lens are in part altered, swollen intracapsular epithelium, and in part albuminous globules, which have oozed from the interior of the lenticular fibres, the softer nature of the superficial fibres rendering this exudation more easy. The peculiar junction of the fibres of the lens by the interlocking of the serrations along their edges is so close a mode of union that absolutely no interval is left between the adjacent fibres in any one plane, and the alternating arrangement of the fibres in planes which touch one another conduces to the same end. A transverse section made perpendicular to the long axes of the lenticular fibres, shews at a glance how very closely they are packed; there is no room left for the presence of layers of cells between them.

When a lens has been hardened in a solution of chromic acid, or any other chemical substance which coagulates albumen, it becomes swollen, and the fibres in the interior undergo considerable pressure, to such an extent that occasionally several planes of fibres are condensed into a glassy block, in which the original fibrous character is almost lost. In this condensation beads of albumen are pressed out of the fibres, and coagulate in small masses of globules, flat-

tened at the points of mutual contact; these globules have sometimes a deceptive cellular appearance.

CAPSULAR OPACITIES.

Not long ago few persons would have questioned the occurrence of opacities of the capsule of the lens, and "*opaque capsule*" is an expression which we still constantly use; although in the majority of cases to which it is applied, it is not strictly anatomically accurate, yet it is a very convenient term to denote certain opacities connected with the capsule. More recently, some, as Malgaigne and Stellwag von Carion, have denied that the capsule of the lens ever becomes opaque, but this statement must be received with certain limitations.

The researches of H. Müller* have shewn that the capsule of the lens is subject to colloid formations, closely resembling those which affect the elastic lamina of the choroid, and the thickened portions of the capsule occasionally enclose opaque objects; in this way, the capsule may have opaque spots within it, but it deserves notice that although within the tissue of the capsule, they are not transformations of it.

In most instances, opaque capsules, so called, are really transparent capsules with opaque objects adhering to them; those upon the front of the capsule corresponding to the uveal surface of the iris, and the pupillary area are usually delicate webs of fibrous tissue, with or without uveal pigment entangled in them. When the quantity of uveal pigment is great, these spots are occasionally so dark that the naked eye detects them with difficulty upon the black area of the pupil; the ophthalmoscope at once shows the true nature of these cases.

The webs and membranes which we meet with upon the front of the capsule are the organized products of a previous iritis. They have a fibrous structure, and when they remain

* Archiv für Ophthalmologie, Band iii., Abth. i., S. 55. Ueber die anatomischen Verhältnisse des Kapselstaars.

in connection with the vascular surface which has furnished the lymph, vessels may sometimes be traced in them; they commonly adhere to the opposite surfaces of the uvea and capsule, but instances sometimes occur in which the pupil is closed by a delicate film, which has an extremely slight, if any, adhesion to the capsule. I have several times removed the lens and capsule (by dissecting them from behind) without tearing through the filmy membrane which stretched across the pupil. The extent of these membranes varies greatly; in some cases they reach outwards towards the ciliary processes, but frequently they are confined to the pupil and its immediate neighbourhood,—a fact of which I was first aware from dissection early in the summer of 1856, and one which is confirmed by the observations of Dr. Bader. It is, however, just what we ought to expect, because the capillary network immediately around the pupil is more abundant than that which supplies the radiating fibres of the iris, and consequently the vascular supply is more copious. False membranes upon the front of the capsule do not merely in themselves obstruct the rays of light, but they also have an indirect influence on the parts within the capsule; they modify or wholly prevent the nutritious currents through the capsule and bring about most important changes in the epithelium lining its inner surface and in the superficial fibres of the lens. These alterations are attended with a loss of transparency; the appearances are sometimes simply those of fatty degeneration, but in other instances the intracapsular epithelium does not simply atrophy, but by a perversion in its development it yields an opaque irregular fibrous tissue, instead of the natural fibres of the lens.

Synechiæ are not the only causes which modify the nutrional currents through the capsule pressure is another efficient cause, and one which helps us to understand the formation of the small white central specks which we occasionally see in congenital cataracts. Mackenzie says that this kind of opacity is by no means an uncommon result of ophthalmia neonatorum, and thinks that the capsule has par-

ticipated in the inflammatory action, and so become partially albuginous.* In some of these cases, a corresponding opaque dot occurs on the posterior surface of the cornea. From this Dr. Mackenzie suspects that the cornea had given way from ulceration, and the escape of the aqueous humour had allowed the capsule to advance into contact with the ulcerated point, after which the ulcer had healed, and the aqueous chamber again become plump. But in these cases we need not necessarily suppose any previous inflammation of the capsule, and I think that the mere existence of an opaque dot on the posterior surface of the cornea corresponding to the lens is not in itself a sufficient proof of the occurrence of perforation. When we remember the small size of the anterior chamber of the infant's eye, and the spherical shape of the lens at this early period of life, it becomes apparent that the distance between the front of the lens and the posterior surface of the cornea must be very small, for a large segment of the lens projects through the pupil and the zenith is considerably in advance of the plane of the iris; in these respects the infant's eye presents a striking similarity to that of the fish. In ophthalmia neonatorum, when the cornea has become inflamed and swollen its posterior surface may actually come into contact with the front of the lens, and then a dot of lymph poured out upon the latter by the inflamed cornea, or even the mere pressure-contact, may give rise to opacity by preventing the proper nutritional osmose through the capsule; the little white cones which seem to project forward through the pupil in cataracta pyramidata, have their origin in this way. They seem to stand out from the front of the capsule, but this is a fallacious appearance, for they are really seated upon its inner surface, and instead of projecting outwards they are actually imbedded in the substance of the lens. This fact has been demonstrated by Stellwag von Carion, Rucke, Bauer, and others; it is mentioned by Mr. Dixon in his "Practical Study of Diseases of the Eye," and I myself have had several op-

* Mackenzie on the Diseases of the Eye. Ed. iv., p. 469.

portunities of verifying it by dissections. The slightest touch of the needle in the operation of solution sometimes suffices for the detachment of these little opaque cones, and this has been urged as an objection to the truth of the view I have just stated. I have seen it happen on several occasions, and have minutely examined the detached portion. It consists of a small disc of transparent capsule, to the inner surface of which the base of the little cone adheres; this is usually composed of tangled fibrous tissue, loaded with fatty matters and earthy salts; the fibrous tissue has its origin in a faulty development of the intracapsular epithelium, and the transitional stages admit of easy demonstration.

Irregular fibrous tissue, resulting from faulty development of the intracapsular epithelium in cataracta pyramidata.

On the different Forms of INFLAMMATION OF THE EYE Consequent on Inherited Syphilis.

By Mr. Jonathan Hutchinson.

(*Received June 26th*—Ed.)

My objects in the following essay are—

I. To give a more detailed account, than has yet been attempted, of the form of acute iritis, occasionally met with in syphilitic infants.

II. To shew that acute iritis as a consequence of hereditary syphilis is not so very rare as it has been thought, and that it now and then occurs at periods subsequent to infancy.

III. To endeavour to prove that the form of kerato-iritis met with in young persons, and formerly known as "aquo-capsulitis," is, in the majority of instances, of specific origin.

IV. To endeavour to prove that the disease known as "Chronic corneitis," "Interstitial corneitis," "Strumous corneitis," is almost always a direct result of inherited syphilis.

V. To illustrate the connexion with hereditary taint, of some of the cases of deposit in or upon the retina or choroid, hitherto classed as "scrofulous."

VI. To shew that certain cases of tinea tarsi, fistula, lachrymalis, and other affections of the ocular appendages occurring in children are of syphilitic origin.

My attention was first drawn to the dependance of certain inflammations of the eye in infants and young persons upon hereditary syphilis about eight years ago. Investigation early led me to the belief that the term "strumous" is applied to several which ought properly to be called syphilitic. To enable me, however, to put this belief on such a basis as should entitle me to ask for it the assent of others, a large collection of facts was requisite. To have collected these would have taken me far longer than it has done, had I not received the kind assistance of many friends. Only a few of the cases which will be found recorded in the following report occurred in my own practice. From visiting many hospitals I have had unusually good opportunities for getting together a series of examples of diseases, which are certainly rare. For permission to make use of cases observed in their wards, I am especially indebted to Mr. Dixon, Mr. Critchett, and Mr. Bowman, of the Moorfields Hospital, to Mr. Lawrence and Mr. Wormald, of St. Bartholomew's,

to Mr. Startin, of the Hospital for Diseases of the Skin, and to Dr. Risdon Bennett, of the Victoria Park Hospital. To this explanation I must also add a few words of apology for the length of the present essay. The profession very properly receives wide assertions respecting the direct dependance of disease upon inherited taint with much scepticism. Peculiar difficulties, moreover, beset the attempt to *prove* anything respecting the remote effects of venereal disease. To those who appreciate the great difference in value of a principle made probable by evidence and one merely asserted, the above considerations will, I trust, be a sufficient apology for what might otherwise appear prolixity.

ACUTE IRITIS DEPENDANT UPON HEREDITARY SYPHILIS.

This affection was first described in connexion with its true cause by Mr. Lawrence, and it is, I believe, the only inflammation of the eye which has hitherto been recognised as dependant on inherited syphilis. Since Mr. Lawrence's notice of it, cases have been recorded by Dr. Jacob, by Maunsell and Evanson, Mr. Walker, and Mr. Dixon. The latter gentleman especially has given an excellent account of its peculiar features. I can, however, find but six cases on record, and, as my own experience supplies but ten others, it will be necessary to cite the whole in order to obtain sufficient data for trustworthy inferences. Of previously published cases a short abstract will be enough. To commence then with the earliest we will take first the one recorded by Mr. Lawrence.*

Case I.—Iritis of but one eye occurring in a syphilitic infant.

Jane M., aged 16 months. Acute iritis of the left eye commenced at the age of 15 months. The iris lost its brilliancy and assumed a dark tint. The pupil was a little contracted, and there was some intolerance of light. There was

* Treatise on Venereal Diseases of the Eye, 1830, p. 306.

some sclerotic redness, and also the upper lid was slightly swollen. The infant had at the same time a vaginal discharge and flat condylomata about the anus and on the perineum. Its mother had contracted syphilis three months prior to her confinement. The infant, healthy at birth, was stated to have had afterwards purulent ophthalmia and an eruption on the skin. Mr. Lawrence employed a mild mercurial treatment, and states that the eye recovered completely. It must be noted as perhaps accounting for the unusually delayed appearance of the iritis, that the infant probably contracted the taint only very shortly before birth.

Case II.—Iritis of but one eye in a syphilitic infant.

An infant, aged 11 months, of whose antecedents nothing more is stated than that its father had at the time a syphilitic tubercular eruption. "Well marked iritis" occurred in one eye. No details are given. This appears to have been the only example of the disease which had come under the notice of the writers (Maunsell and Evanson).*

Case III.—Pupil obliterated by iritis in a syphilitic infant.†

In this case the child did not come under Dr. Jacob's care until about three years after the inflammation. It then presented a soft condylomatous elevation at the anus, and numerous small fissures and clefts in the tongue. The diagnosis of syphilis was clear. No suspicion had, however, been entertained as to the true nature of the case previously, and the child was brought to Dr. Jacob to be cured of supposed cataract. On examination of the eye "the pupil was found contracted and adherent to an opaque lens and capsule. Vision was irreparably lost." The other symptoms disappeared under the mercurial treatment which Dr. Jacob adopted. The inflammation of the eye was stated to have occurred at the age of "a few months."

* Practical Treatise on the Management and Diseases of Children, 1847, p. 534.

† Treatise on Inflammations of the Eyeball, 1849, p. 97.

*Case IV.—Iritis of one eye in a syphilitic infant.**

Mary O., aged 6 months, had been, when six weeks old, the subject of a copper-coloured rash on the hands and legs. It had been partially cured by medicine, but enough still remained to identify it. At the age of five months the right eye inflamed. The iris became muddy, and showed three or four whitish masses of lymph on its surface. The pupil was all but motionless: the conjunctiva and sclerotic were much congested, and the cornea hazy. After a fortnight's mercurial treatment both the iritis and the rash "had almost wholly disappeared." The attack of iritis had lasted altogether about six weeks.

The next two cases are from Mr. Dixon's work, and were under that gentleman's care at the Moorfields Ophthalmic Hospital.

Case V.†—Iritis of one eye in a syphilitic infant—Deposit of lymph on the capsule of the lens in the other eye—Recovery of both.

Mary Ann W., aged 3 months. Healthy when born, but at the age of seven weeks had a scaly syphilitic eruption. The iritis had set in in the ninth week, and the acute stage had passed by, when, three weeks later, the child was placed under Mr. Dixon's care. The accompanying symptoms were loss of the eyelashes, aphthæ in the mouth, scaly eruption on the face, copper-coloured patches on the belly and thighs, and desquamation of the cuticle in different parts. Although both parents denied syphilis, yet the real nature of the disease was beyond doubt. It appeared that there had never been much congestion of the tunics of the eyes, the earliest symptom noticed by the mother having been "a pearly appearance in each pupil." The left iris was dotted over with grains of lymph, its pupil contracted and adherent.

* Provincial Medical and Surgical Journal, 1845, p. 293.

† On Diseases of the Eye, p. 149

The right iris was clear, but on the capsule of the lens was a crescentic patch of effused lymph. Under a three months' steady employment of small doses of mercury, every trace of deposit disappeared in both eyes. The use of mercury in effecting the removal of lymph, which had evidently been some time effused, was very conclusively marked.

Case VI.—Double iritis in a healthy-looking infant, but with a clear history of hereditary syphilis—Permanent occlusion of one pupil.*

William J. J., aged 4 months. Healthy when born, but when a month old had a dusky red eruption over the body, which disappeared under mercurial treatment. His mother owned to having had sores, followed by secondary symptoms, a few weeks before her pregnancy. When admitted under Mr. Dixon's care, the right eye only was affected. The child was then healthy, well grown, and lively, and displayed no other symptoms of syphilis. There was, however, "a certain dusky tinge of the skin," which disappeared under the subsequent treatment. The iritis had existed only a week, and at first the mother had noticed the white of the eye to look "pinkish." All sclerotic congestion had, however, passed away at the time of admission: the cornea was quite clear, but the lower half of the anterior chamber was occupied by pale yellow lymph. The pupil was misshapen, but the upper half of the iris was clear. Five days later, the eye was much worse, the iris being discoloured, and much additional lymph effused. The left iris was also slightly inflamed. Mercury was now commenced, and in about a month the effused lymph had been absorbed. The pupil of the right eye was, however, permanently occluded. In the left the restoration was perfect.

The above six cases are all the examples of syphilitic iritis in infants I have been able to find recorded. The

* Op. cit., p. 145.

following are those which have fallen under my own observation :—

Case VII.—Double iritis in a syphilitic infant—Recovery of both eyes.

Harriet H., aged 8 months, an illegitimate infant, was brought by her mother to the Hospital for Skin Diseases in July, 1852. She was wasted and cachectic, and about the anus were excoriated condylomata: there were also ulcerated fissures extending upon the alæ nasi. Her mother was covered with syphilitic rash. It was stated that, when a few weeks old, the child was affected by severe snuffles, after which double otorrhœa and a rash on the nates occurred. The right eye only was affected at first. Its anterior chambers contained much brownish lymph, and the iris, where visible, was muddy and discoloured. There was a very faint sclerotic zone, and no intolerance of light. Mercurial treatment was at once adopted, and the lymph was slowly absorbed. The mother attended irregularly, and two months later a slight attack of iritis occurred in the infant's left eye. Four months from the date of admission all lymph had been absorbed from both eyes, excepting that some slender adhesions of the pupillary margin remained in the right. The complete though slow absorption of so large a quantity of lymph was a result very encouraging to the long-continued use of mercury in similar states.

Case VIII.—Iritis in one eye in a syphilitic infant—Result not known.

Emily C., aged 3 months, attended in the out-patient's room at St. Bartholomew's Hospital, under the care of Mr. Wormald, in the summer of 1852. Her mother denied having had sores or other suspicious symptoms, but she had, she said, greatly lost her health since marriage, and had had one miscarriage. This was her first living infant. The child was stated to have been healthy when born, and to have

remained so until aged two months, when there appeared almost simultaneously an eruption of psoriasis on the face, patches of erythema marginatum about the thighs and body, aphthæ in the mouth, snuffles and emaciation. Quickly following on these was inflammation of the left eye. The iritis had existed about a month when first brought under notice. The pupil was then irregular, fixed, and partially occluded by lymph. The iris was discoloured. There was no sclerotic congestion. A mercurial course was commenced, but the mother did not attend, and I am, therefore, unable to state the result.

Case IX.—Slight iritis in a syphilitic infant who had been some months under treatment—Perfect recovery of the eye.

Christopher T., aged 8 months, had been attending for four months, under Mr. Startin's care at the Hospital for Skin Diseases, on account of syphilitic rash, etc., before the iritis shewed itself. Mercurials had been ordered, but the attendance had been very irregular. His mother had also been under treatment for the same disease. This was her first living child. When born he was stated to have been healthy, but at two weeks old unmistakeable symptoms shewed themselves. They consisted in papular rash over the whole body, snuffles, and muco-purulent ophthalmia. All these were nearly well when the iritis supervened. A zone of sclerotic redness was present during the first four days of the attack, but afterwards wholly disappeared. The iris became muddy, and of a sea-green hue, but there was no great effusion of lymph upon its surface. The mercurial treatment, which had been disused, was resumed, and in the course of a fortnight the iris was perfectly clear.

Case X.—Iritis in one eye in a syphilitic infant—No treatment—Permanent occlusion of the pupil.

Sarah P., aged 8 months, a pallid puny infant, was admitted under Mr. Wormald's care at St. Bartholomew's Hospital, on April 20th, 1855. Her mother had lost five

infants with suspicious symptoms, and this was her only one living. She was stated to have appeared quite healthy at the time of birth, but had begun to suffer from snuffles and rash on the skin when a fortnight old. There was a copious eruption of psoriasis on the body, a crop of condylomata around the anus, and the peculiar odour of hereditary syphilis was very distinct. The right eye only had suffered. Its pupil was wholly occluded by a large deposit of reddish lymph, which had become organised. The cornea was unduly prominent. The disease had existed for some months, and no treatment had as yet been adopted. Unless restored at some future time by an operation for artificial pupil vision was totally lost.

Case XI.—Slight double iritis in a syphilitic infant —Result not known.

Alice Kate C., aged 2 months, was admitted under Mr. Critchett's care at the Moorfields Hospital, on September 25th, 1855. Her mother had borne eight children, of whom this was the only one surviving. Six of the others had been stillborn, and one had died with well marked syphilitic symptoms. The patient was, according to report, and as is quite usual, of fair skin and very healthy aspect at the time of birth. When a week old, psoriasis of the palms and soles was noticed, and shortly afterwards general psoriasis and severe snuffles. She was now a cachectic puny baby. The psoriasis for an infant was unusually well marked, the patches being thickly crusted with shining white scales; it was also very symmetrical. The skin of the palms and soles was peeling; all the lids were affected by tinea tarsi, and both irides, which were stated to have been blue, had assumed a sea-green colour. Both pupils were notched at their margins and had slender films of lymph attached to them, but there was no visible deposit of lymph on either iridal surface. A delicate pink zone was perceptible in each sclerotic when looked for, but might have easily escaped notice. A mercurial treatment was commenced, but the irregularity of the mother's

attendance prevented me from becoming acquainted with the result of the case.

Case XII.—Iritis of one eye in a syphilitic infant—Anterior chamber wholly occupied by lymph—Result not known.

Anna L., an infant Jewess, aged 3 months, was admitted under Mr. Critchett's care at the Moorfields Hospital. Her mother denied having ever had venereal disease. Both her previous infants had, however, died, and she herself had fissures at the angles of the mouth of very suspicious aspect. Healthy at the time of birth, the infant was stated to have begun to snuffle on the third day, and it was now puny and wasted, with fissures at the corners of the mouth, and psoriasis over the arms, hands, and fingers. The right eye only was affected, and had been inflamed for one month. The sclerotic zone was now faint, but the pupil was wholly obliterated and the cornea rendered opaque by a mass of lymph which adhered to it and occupied the anterior chamber; the lids were inflamed. Mercurial treatment was commenced, but I lost sight of the case and have no further note of its progress.

Case XIII.—Iritis of one eye in an infant, believed to be syphilitic—Permanent occlusion of the pupil.

Emily W., aged 1 year, came under notice amongst Mr. Critchett's out-patients at Moorfields. Her mother denied having ever had any form of venereal disease. She had borne seven children, of whom three only were living; all the last five had been born prematurely. Several had, she said, suffered in infancy from severe and protracted snuffles, but beyond this all suspicious symptoms were denied. The infant herself was stated to have had a sore mouth and sore anus when a few weeks old; she had never thriven, and, to use her mother's expression, "was still as much of a baby as at the time of birth;" she was a little, puny infant, and the bridge of her nose was much expanded, but she presented no positive symptoms beyond the iritis. The right eye alone was inflamed, and two months had elapsed since the commence-

ment of the attack, during which no treatment had been adopted. The pupil was occluded by reddish yellow lymph, which appeared vascular and organised, and did not look at all as if likely to be absorbed. There was no material sclerotic redness. Mercurial treatment (inunction) was prescribed, and, contrary to expectation, in about two months absorption was so far complete that only a thin white membrane remained. The child had both grown and greatly improved in health during the treatment. It is intended shortly to perform an operation for artificial pupil on the occluded eye.

Case XIV.—Iritis of one eye in a syphilitic infant—The other eye attacked eight months afterwards — Permanent occlusion of one pupil and much damage to the other eye.

The subject of this case was a girl aged 2, to whom my attention was called by my friend Mr. Wormald at St. Bartholomew's Hospital. The left eye had first inflamed at the age of sixteen months; the attack being a pure iritis without any affection of the cornea; much lymph was effused, but the sclerotic congestion was but slight. Mr. Wormald ordered mercury, and under its influence most of the lymph was removed, leaving the pupil, however, permanently occluded. The treatment was pursued very irregularly, owing to the child's parents living in the country. After having ceased to attend for about six months she was admitted for a second time, on account of iritis of the right eye, with acute inflammation of the cornea, and a central ulcer which threatened perforation.

Unfortunately, I have preserved no note of the other syphilitic symptoms presented by the child; I know, however, that they were unmistakeable. Mr. Lawrence as well as Mr. Wormald saw the case and coincided in the diagnosis. The mother confessed to having had syphilis, and if I remember right, had been herself treated by Mr. Wormald for constitutional symptoms. When I last saw the case, the inflammation was subsiding under specific treatment. It appeared certain, however, that the eye would be permanently much damaged.

Case XV.—Iritis of both eyes in a syphilitic infant—Permanent occlusion of the left pupil—Operation for artificial pupil.

James C., of Irish parents, aged 4 months. [This case as well as cases 12, 13, and 16, were amongst those under Mr. Critchett's care, at the Moorfields Hospital, but were, through that gentleman's courtesy, transferred to me.] He was when born, to all appearance, a healthy infant, but at the age of one month began to snuffle badly, and was soon afterwards the subject of a scaly rash. After this the mouth and anus became very sore; iritis set in when he was two months old, and began in the left eye.

My note, on December 29, 1857, states "The boy still looks fairly healthy, but has bad snuffles and the remains of a rash. The left eye has been noticed to be inflamed for two months and was formerly 'bloodshot.' At present there is no sclerotic zone, but the pupil is occupied by a white film, and in the outer part of the anterior chamber is a large irregular mass of yellow lymph. The lymph is adherent to the cornea but the latter structure is not in itself involved. The mother is not aware that the right eye has ever been inflamed, but on inspection its pupil is seen to be irregular from adhesions, and the iris is decidedly dull." The treatment adopted consisted in mercurial inunction and was effective in procuring the absorption of all the lymph, excepting that occupying the pupil itself (Plate V, fig. 1). He improved greatly in health, grew rapidly, and got fat. On June 7, the eye having been quite quiet for four months past and the process of absorption being evidently quite at a stand still, I determined, with Mr. Critchett's concurrence, to attempt the removal of the occluding membrane. Our decision against any longer waiting was chiefly grounded on the fact, that the eye was already beginning to assume those oscillatory movements so common in the eyes of young children when perception of light is lost. The occluding membrane was evidently very tough and thick, it was feared that unless light could be let in, the globe would

not develop. The operation was accomplished by the simultaneous use of a cutting needle and Leur's forceps, introduced from opposite sides of the cornea. The opaque material, which was exceedingly tough, was seized by the forceps and then cut free at its margins by the needle. A good clear pupil was thus gained for the time. The subsequent effusion of lymph will, however, necessitate recourse to the needle again at some future time.

Case XVI.—Slight iritis of one eye in a syphilitic infant —Recovery of the eye, though with some adhesions.

"Wm. John J., aged 9 weeks. Healthy when born, and remained so, according to his mother's account, until six weeks old, when he had 'small-pox'; after this his eyes inflamed. Of the so-called small-pox not a single scar now remains, but the buttocks are covered with syphilitic eczema and ulcerated condylomata surround the anus. He has also snuffles. His mother looks ill and has an eruption of psoriasis. During the first week of pregnancy she had, she states, much soreness and pain in micturition and a bad discharge; after this her hair fell off; she has been liable also to cracks at the angles of the mouth. She is "not aware that she has had any venereal disease, and has never been treated for such." The iritis in this instance was of the left eye only, and there was so little either of effused lymph or of sclerotic congestion, that several of those present were inclined to doubt my diagnosis. The use of atropine, however, removed all incredulity and left the pupil oblique and deeply notched in several directions. It was the peculiar green tint of the iris which had led me to believe that it had been inflamed. All acute symptoms had evidently subsided. The lids were swollen, and there was some mucous discharge. Mercurial inunction was ordered and the infant got rid of its rash. The iris also, to a considerable extent, regained its normal colour and brilliancy. The adhesions, or most of them, still remained at the time the child was last seen.

(*to be continued.*)

REPORT

OF OPERATIONS ON THE IRIS PERFORMED AT THE ROYAL LONDON OPHTHALMIC HOSPITAL, DURING APRIL, MAY, AND JUNE, 1858.

By Dr. Bader, *Curator and Registrar.*

The diseases, or results of disease, which have rendered iris operations necessary were, adhesion, anterior and posterior; corneal opacity; chronic and acute iridis; chronic and acute glaucoma: staphyloma; ulceration of the cornea, and conical cornea.

I. Adhesion.

In seven cases of adhesion to exudation thrown out in the area of the pupil after syphilitic iritis—of them, two were operated on in both eyes. The operation consisted in opening the cornea near its transparent edge sufficiently to admit a small spatula, which was advanced behind the pupilary margin, and being moved, parallel to the iris, towards the adhesion, it was broken through, in most cases, with great facility. The exudation, a gray, pigment-dotted membrane, shrank towards that part of the pupilary margin farthest from the spatula, and the transparent lens appeared in the pupilary area. None of these operations was followed by inflammatory symptoms, and the improvement of vision was marked in all the cases, for distant as well as for near objects. The pupil does not generally resume its round shape, but the operation allows of freer movement of the iris on the lens. Part of the exudation sometimes remains adherent to the lens-capsule, when the pupilary margin has been freed by the operation; in these cases some one of the operations for artificial pupil can be adopted. By some dissections it appears that the adhesions are weakest at their insertion behind, and near the pupilary margin. In none of the cases in which the spatula only has been used, has the lens-capsule been opened. After the operation, the ophthalmoscope can be used to judge of the effect, and of the state of the deeper parts of the eye. The sequelæ of syphilitic iritis appear to be those best adapted to this treatment. The spatula used should retain the aqueous humor, with regard to which the corneal opening should be made, and opposite that portion

of the pupilary margin, which will most easily admit the spatula so as to detach most of the adhesions. One case, in which after injury the iris was adherent to the cornea, was effectually treated by detaching the iris with the spatula. In one case both eyes were operated on, by introducing at the pupilary margin the small blunt hook, and the portion of iris withdrawn was removed with scissors, so as to form the pupils down and outwards; vision was perfect after the operation.

In five cases artificial pupils have been made for adhesion of the iris, after extraction of opaque lenses, at this and other hospitals. In three cases the pupil was drawn into, and had become adherent to, the corneal section, the anterior chamber was small, the aqueous yellowish, and tension of the globes normal, and vision was reduced to perception of shadows. The operation, performed after all inflammation has subsided, either consisted in the introduction of the broad needle from the lower corneal edge across the anterior chamber, up to the adherent iris, then thrusting it through the iris and partly cutting partly tearing it downwards; or the cannula forceps has been introduced up to the point of adhesion, and a piece removed with it from the substance of the iris. In either way, the pupils produced are black and central, but, as for vision, the results are generally very unsatisfactory.

II. Corneal Opacity.

In three cases of hereditary syphilis, of the ages of 17, 19, and 21 respectively, artificial pupils were made, in both eyes, for central opacities of the cornea, by tying the iris according to Mr. Critchett's method. His proceeding consists in opening the cornea with the broad needle, at its margin, seizing the iris midway between its periphery and its pupilary margin with the cannula forceps, drawing it out of the corneal wound, so as to cause a small nodule to protrude, and then seizing it with forceps constructed to hold a loop of floss-silk, which, whilst the iris is held, is gently tied round the iris nodule, which, with the silk forming a small button, retains the iris sufficiently long in the corneal wound, to allow of its adhering to it. By this operation the entire pupilary margin is left intact. The silk ligature, with the portion of iris included, generally falls off on the second day after the operation. In the above-mentioned cases the pupils were formed up and inwards, the result to vision was perfect, and the patients left on the third to the fifth day after the

operations. In two cases of corneal opacities after purulent ophthalmia, the pupil was formed opposite the most transparent part of the cornea, in one case by withdrawing the adherent iris with the sharp hook, and in the other by tying it outside the cornea—the operation in the latter case (a child) was followed by suppurative inflammation. Four cases of central corneal opacity after injury, without adherent iris, and a similar case consequent upon granular lids had operations for artificial pupil performed by tying the iris. The result was perfect, the pupils acting, except at that part nearest the iris adhesion, and the patients left the hospital on the third to the fifth day following. One case in which small opacities existed, with occluded pupils in both eyes, consequent upon an explosion of gunpowder eleven months ago. Both eyes were inflamed for five months, and during the seventh month after the injury in the left, and the ninth in the right eye, perception of light was recovered. At the time of the operation the patient could see shadows with the left eye and count fingers with the right. The tension of the globes was normal, the anterior chambers large, the irides flat, (lens?), and the pupils blocked up by a gray membrane. Both pupils were formed towards the nasal side, the left by withdrawing a piece of iris from near its pupilary margin with the cannula forceps, the right by removal of the false membrane, seized and then withdrawn from the pupil, with the same instrument; in this second operation, the vitreous came forward, and some of it escaped by the corneal opening, but the ciliary irritation that followed this operation in the right eye, subsided spontaneously after a few days. In ten days, when the patient left, he could count fingers with the right, and with the left eye (and a convex lens) he recognized the smallest object.

III. Chronic and Acute Iritis.

Four cases of syphilitic corneo-iritis—the corneæ were hazy in patches, the irides faintly perceptible, without any lymph deposit, the pupils irregular, the ciliary region slightly injected, and the globes of normal tension. The patients suffered from photophoby, had no pain, and could only distinguish passing shadows. The general type of the cases was that of hereditary syphilis, secondary syphilis in children. The attacks were recurrent and painless. Of these patients, the worst eye was operated on by excision of about a fifth of the iris, comprising its whole breadth from the pupil to the

periphery. A cataract knife was introduced through that part of the sclerotic nearest the upper corneal edge into the anterior chamber, and an incision made of about four lines in length, when the knife was withdrawn, the aqueous escaped, the iris presented in the section and was seized with the iris forceps and excised. In none of the cases did any bleeding follow the operation, or any serious inflammatory symptoms; vision became slightly improved and the photophoby ceased, but the diseased state of the cornea did not appear to be influenced by the operation. Excision of the iris has been tried in a case, in which the syphilitic changes were confined to the choroid and retina, and the operation, harmless in itself, had no effect upon the state of the deeper parts of the globe.

Seven cases of so-called rheumatic iritis, of ages between 24 and 56. The attacks, occurring at different intervals, were accompanied by severe pain in the eyes, and were followed by impairment of vision; all of them had had repeated attacks before the operation, at the time of which, the pain and photophoby were great, the tension of the globe increased, the ciliary region injected, the cornea transparent, the anterior chamber small, the iris discoloured, and, in several cases, bulged forwards round the pupilary edge: the pupils were of median size and immoveable, with a gray membrane thrown out in their areæ; the impairment of vision, was in these cases considerable. In one of the cases both eyes were operated on; in the others one only. The piece of iris excised was a quarter or a fifth of the whole, and was taken sometimes from the outer or lower, but generally from the upper portion, as the optical advantages of excising that portion of iris, which is usually covered by the upper lid, are evident. In several cases slight bleeding occurred from the cut edges of the iris, the blood was then removed by pressure on the cornea, or with the scoop. No considerable inflammatory symptons followed the operation, the tension of the globes soon subsided, the anterior chambers became larger, the pain and photophoby disappeared entirely, and vision was much improved. The immediate effect of the operation is, for this class of cases, very satisfactory. The patients left the hospital in from three to seven days afterwards.

A piece of iris has been excised in a case of granular lids, with corresponding changes in the cornea, the state of the patient was not changed by the operation. In another case

an eye lost by injury, had been excised on account of its impairing the other, which then recovered so as to enable the patient to read, and for two years remained tolerably well, when again, inflammation, assuming an intermittent character, appeared in it, each attack reducing the power of vision. At the time of the operation the sclerotic and conjunctiva. in the ciliary region was slightly red, the tension of the globe increased, the cornea transparent, the iris very much thinned and almost in contact with the cornea, the pupil of median size, fixed, its area grayish, the patient had no pain, and could, with difficulty, recognize people. The outer fourth of the iris was removed through an incision near the outer corneal edge; the iris tissue was so rotten that it had to be torn out in small pieces with the cannula forceps. No inflammation followed this operation. On the seventh day after it, the tension of the globe was normal, the pupil slightly active, its area black and the anterior chamber small. The patient could then read large type easily, and he left the hospital. The outer third of the iris has been excised from a globe which had received a blow twelve years ago. The globe was painful, softish, somewhat shrunk, and had no perception of light, the anterior chamber was very small, the pupil small and fixed, with a grayish membrane in its area. A yellowish fluid escaped during the operation, and the globe collapsed somewhat. On the fifth day after the operation, the patient left the hospital, the globe was then tender on pressure, still softish, the anterior chamber had some blood, in it and was normal in size, the pupil was grayish and fixed; the patient could count fingers.

Tying of the iris has been performed in a case of recurrent iritis; the patient, a man in ill health, with chronic bronchitis and a heart affection, had been subject to spontaneous attacks of inflammation, rheumatic ophthalmia in both eyes, for fifteen years, during which the left eye had been lost, and vision in the right reduced to perception of light near objects. The globe was hard, the conjunctiva congested, the two upper thirds of the cornea uneven, hazy and vascular, the black pupil could be seen faintly, the patient counted fingers with difficulty when held very close to his eye. The iris was tied in a direction down and outwards, and the nodule outside the cornea separated on the second day, leaving a black point, the adherent iris, in its place. The patient left on the eighth day, the state of the

globe was unaltered, but he was able to recognise people across the street.

IV. Chronic and Acute Glaucoma.

Eleven cases, of ages between thirty-five and seventy-five. No particular disease could be made out as predisposing to the affection. The patients were generally very nervous people, and had, before the dimness appeared in the eyes, been exposed to much mental excitement; most of them were very anœmic, and had also been for years in the habit of wearing glasses, convex or plano-convex, for their "weak eyes" before the dimness appeared, which in all cases for a long time preceded the pain, &c. The external appearances were, as usual, increase of tension, discolouration of the sclerotic, etc. In ten of the cases the cupped optic-nerve-entrance could be seen with the ophthalmoscope; in the remaining case, the media were too turbid to admit light to the fundus. Those retinæ, in which the greater quantity of blood circulated, were invariably the best. When one eye only was affected, no cup could be discovered in the sound eye, but the entrance had lost its semi-definedness, it appeared reddish, and could in several cases only be recognized by the entrance of the retinal vessels. In two of the cases pulsation was seen in the vessels lining the cup. The patients generally presented themselves at the hospital, when a severe attack of pain, redness, etc., appeared. The treatment adopted by the surgeons of this hospital consists, as it has been described in former reports of these cases, in excising the upper third of the iris, by passing the cataract knife through the sclerotic nearest the upper corneal edge into the anterior chamber, not as far as the pupilary edge, advancing it, and making an incision of about four lines in length. Not unfrequently after the speculum has been taken out, the anterior chamber fills with blood, which should be carefully removed by pressure on the cornea; in these cases its resorption takes much longer time than is usual, and the result of the operation is protracted by this occurrence. The operation is difficult when the iris and cornea are in apposition. In one case the lens was wounded, and protracted and painful suppuration of the globe followed the operation. In another case, in which a good deal of blood was left between the lens and the cornea, at the same time that the pain had subsided, vision, when the patient left the hospital, remained the same, and there existed much ciliary redness,

Of the other nine cases, three had both eyes operated on, and the others one only. The patients were generally placed under the influence of chloroform during the operation, and in seven to ten days afterwards they left the hospital. The pain had then entirely subsided, the media resumed their transparency, and the cornea its smoothness, the iris was in apposition with the cornea, the tension of the globe was normal or less than usual. Vision was strikingly improved in several of the cases, and remained the same in others. The cupped appearance of the entrance had lost much of its bluish hue and apparent depth. The progress of these cases varies much; some, all of those which had been blind for years before the operation, remain stationary; others, those which had been operated on whilst vision either still existed or had disappeared but a very short time, continue to improve steadily. One case, in which the operation was performed in the beginning of October, 1857, had perception of light only before that time, and could see fingers afterwards. On July 30th, 1858, he can read common type with No. 16 biconvex, the media are transparent, the entrance of the optic nerve is well defined and but slightly cupped, the surface of the cup has a reddish hue, the tension of the globe is normal, and the anterior chamber small.

V. Staphyloma.

Two cases of staphyloma sclerotic æ were treated by excision of the iris; in the one there were two pin's-head-sized projections near the upper and outer corneal edge; in the other, they were as large as a pea, and about two or three lines distant from the cornea. Both cases had originated in the course of recurrent inflammations; the patients had perception of light. The outer and upper third of the iris was excised. In the first case, the incision was carried across the staphylomata, but no considerable inflammation ensued from it, and the patient was able to leave on the fourth consecutive day. The two small staphylomata entirely disappeared after the operation, the larger ones were so much diminished as to be almost level with the rest of the sclerotic. Both patients gained perception of shadows in the eyes operated on.

VI. Ulceration of the Cornea.

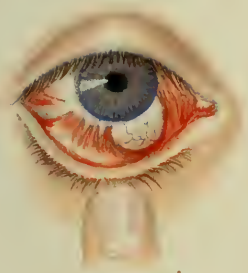
The upper fourth of the iris has been excised also in the case of a patient, aged nineteen, with ulceration of the cornea, which had come on during protracted disease of the

deeper tissues of the eye (retina and choroid, ophthalmoscope). The symptoms were those of acute ulceration of the cornea. The ulcer had sharp edges and an uneven gray surface, and was situated at the lower and outer edge of the cornea. Three days after the operation the globe had lost its hardness, the edges of the ulcer had disappeared, and its place was occupied by a flat, smooth, gray surface.

VII. Conical Cornea.

In this case, a patient of Mr. Bowman, aged twenty-six, could read, but only a few lines at a time. Either cornea formed an equal considerable transparent cone. In the right eye the iris was tied according to Mr. Critchett's method, and in the left a small piece of corneal substance was (Guepin's method) excised, so as to cause a prolapse and adhesion of the iris at this point. Where the iris had been tied all irritation disappeared on the third day after the operation, but in the other eye it continued for about a fortnight, being kept up by the prolapse of the iris. Three weeks after the first operation all inflammatory symptoms had disappeared, and then the iris was tied in either eye at a point opposite to the first-made adhesion. By this the pupil was made into a transverse slit, each angle of the slit being in a line with the angle of either palpebral aperture. The ligatures came off on the second day, and on the third all irritation had disappeared with anterior adhesion of the iris to a point intermediate between its pupilary edge and its periphery, but some irritation continued on the side where Guepin's method had been employed. This patient could read common type with ease. In a similar case, Mr. Bowman proposes the same treatment, but making a perpendicular instead of a transverse slit. The idea of this mode of treating conical cornea consists in producing a small pupil opposite a part of the cornea, which will admit the light more favourably than the cone.

The operations of tying and excising of iris are, as is shown above, harmless. The cases quoted will be followed out, and the final results given. Iris excision has chiefly been practised in cases of intraocular pressure, whatever may have occasioned it. The operation is on trial, and its results are at present encouraging.



OPHTHALMIC HOSPITAL REPORTS,

AND JOURNAL OF THE

ROYAL LONDON OPHTHALMIC HOSPITAL.

No. VI.

January, 1859.

As the powers of adult vision of the two eyes are frequently different, it is advisable that both should be equally employed, and the use of the adjusting stereoscope in early life will promote this object, or may even improve a weaker eye. Some persons can at once see the relief-picture; some only with a patient effort, and others never see the real stereoscopic effect; one of the eyes may require a different focus, or another lens; the lenses may be too near or two far apart, or vision may be defective in one eye without its being known. A "slide," in which the parts of the two pictures are diversified (e. g. any domestic animal represented with some markings in the one picture that are not shown in the other), would be a test for a weaker eye in ordinary cases; but if the defect of vision of one eye is considerable it will be out of use altogether. The case of the little girl, below-mentioned, was one of those in which strabismus followed incomplete amaurosis, and not of defective vision, as a result of strabismus in the common cases of the disease.

It is hardly understood, in London, that squinting is generally to be cured. Of the simple modes of treatment which have been considered remedies, that by blind-folding the eye least affected, so as to bring into use the other, is, it seems, appreciated and followed, with some benefit, in these cases, by the poor, without medical advice. Thus, an intelligent little girl, who was an out-patient at Moorfields with convergent strabismus, for which I could not recommend any operation, asked me a short time ago if I thought she would recover the use of the eye by tying a cockle-shell over the other, because her father wished her to do so, as a friend of his had lately cured himself of a squint in this way.

An errand boy, named John Carpenter, came to me at the Moorfields Hospital, in November last, with a squint. He had, fortunately, met with a school-fellow who had been successfully treated for squint, but the idea of "anything to be done for it" had, otherwise, never occurred to him.

SEVEN CASES OF STRABISMUS IN ONE FAMILY.

The parents of this boy, who came with him, had a large family, and appeared to be more healthy than most of our very poor population are in London. Neither of them had ever squinted, nor had they known any such affection in a former generation. They appeared to be very glad that I thought the boy's eyes could be "put straight," and then told me that *all* their children inclined to squint, particularly the boys, and the mother said her sister, who had married long after she had, had two children that also squinted.

I persuaded the mother to bring all these children. She had ten of her own, and in five of them strabismus was marked, but the mother thought the others had also a slight "cast" sometimes. There also came with her the two children of her sister. She had five, but the three left at home were not considered to have any defects. The children of the large family were thin and pale, their two cousins were fat and ruddy. They all seemed to be active in mind and body. They all had brown hair.

I examined these children individually, and with a view to any points affecting all their cases. The following general detail is verified as regards any one of the cases, excepting (in the case of the infant) those facts which could not be ascertained by inquiry of the patient.

The squints were convergent, and always *directly* inwards. There was no ptosis, or palsy of any of the muscles. They were not congenital, and there was no oscillation of the globes; and the eyes, in each of the cases, were of equal size. The ophthalmoscope in no way explained the common occurrence. There were no corneal opacities, central or otherwise, and no history of ophthalmia. They had no *voluntary* power to squint or to look directly at an object with *both* eyes. One eye (either of them) being closed, the other could always be turned beyond the axis of the orbit, contrariways to the squint—outwards. Both eyes being closed and one (either of them) being suddenly opened, it was then found to be inverted; but able, soon afterwards, to look directly at any object.

Name.	Age	Eye affected Rt. Lt. (or Both).	Since what Age.	Alternating (or Right or Left most)	Inconstant.	Varying in Degree.	Looking directly at an object. Visible of cornea.	One eye only used. (Right or Left).	Short sight. (reading focus in inches).	Discerns with		Double Vision.	Cause. (assigned or probable).	Colour of Irides.	State of Pupil.
										Right	Left				
John C.	15	Left	2	No	No	No	All	Right	12	Any type	Large type	No	Being in the family	Brown (and grey)	Normal
Charles C.	13	Both	1	Yes	Yes	No	All	No	10	Any Type		No	Being in the family	Grey (and brown)	Normal
William C.	9	Both	9 m.	Rt. mst.	No	Yes	All	No	9	Any objects	Any letters	No	Being in the family	Greyish	Normal
Thomas C.	7	Left	1	No	Yes	No	All	No	12	Capitals		No	Being in the family	Greyish	Normal
Fred. Hy. C.	7 m.	Both	5 m.	Yes	Yes	(?)	All	No	(?)	Objects		No	Being in the family	Greyish	Normal
John D.	7	Left	$2\frac{1}{2}$	No	No	No	$\frac{3}{4}$	Right	10	Capitals	Large objects	To right side	None	Grey	Large inactive
Jemima D.	4	Left	$2\frac{1}{2}$	No	Yes	No	All	Right	12	Any objects		No	Whooping Cough	Grey	Large inactive

Some few remarks must follow an examination of the annexed table. Only one girl is among the patients, and, of the large family (ten children), only the boys (five), are affected. One of them had a twin sister, but she certainly had no squint.

It seems to have commenced rather earlier in the lives of the brothers, according to their juniority—the elder children had some brown colour in their irides, and the eldest had very little of the grey in his. It would be interesting to have traced the predisposition to squint, and the grey irides to the same parent; but neither the father nor mother showed, or could personally tell of, the morbid peculiarity. The character of the affection seems to have been indeterminate in the younger children, and in none of them very severe—for instance—it seemed that, although children, any one of them could look at an object with either eye, the view of the other being intercepted; and when the squinting, or, (if both affected) either eye, was thus employed, the other was inverted temporarily, and, at the same time, this could be *kept fixed* upon the object.

Only the eldest boy submitted to the operation at the time, it is two months ago, parallelism is established and he can now read average type with the left eye.

J. F. Streatfeild.

PUBLISHED CASES.

Case XIII.—Temporary Obesity and Amaurosis during lactation.

By Dr. Septimus Gibbon.

S. S., 24 years of age, being totally blind, was led into my Out-Patient Room, at the London Hospital, by her mother, on the 5th of May, 1858. She had a remarkably healthy appearance, a fair complexion, flaxen hair, and blue eyes. For her age and stature (5 ft. 2 in.) she appeared enormously fat. Her face, arms, and hands were laden with adipose tissue. She had borne three children, the last about four months since.

Her mother stated that, previous to her marriage, four years ago, she always enjoyed excellent health; but that, whilst suckling each of her offspring, she had suffered much

from weakness, and had grown very fat, so much so that on the first occasion the rings she wore on her fingers had to be filed asunder. At the same time the muscular debility was very marked, and her eyesight failed her more or less. As soon as she weans her child she has been accustomed to lose a good deal of her fat. During the two first lactations her vision was impaired in a slight degree, but now she was unable to distinguish light from darkness. Her pulse was feeble. The pupils were dilated and nearly insensible to light. She could not discern the situation of the window in the room. I directed her to wean the child, to drink milk, to eat meat twice or three times a day, and take the following draught: —

℞ Syrup. Ferri Iodidi ♏ xx
Ext. Nucis Vomicæ gr. ¼
Infus. Calumbæ ℥i ter die.

Pil. Aloes c. Myrrhâ gr. x alt. noct.

With this plan of treatment the menstrual discharge soon made its appearance. She lost some of her fat, and regained her visual powers.

Many cases have been recorded of amaurosis as symptomatic of hemorrhage, and debility arising from prolonged lactation; but I have not been able to meet with one accompanied, as this case was, with an excessive development of fat in an early stage of suckling. Cases occur, though by no means frequently, in which suspension of the catamenial function is attended with a rapid accumulation of fat in the system. A lady friend of mine is obliged to bring up her children by hand because she grows very fat and weak if she nurses them. Whilst suckling her fourth child, being herself about twenty-eight years of age, she ruptured the ligament of the rectus muscle of the right thigh when making some slight exertion to amuse her children. Although this lady has suckled, for a longer or shorter period, five children, she never experienced the least impairment of vision. I am informed that a first cousin of this lady, on her mother's side, not only suffers from an accumulation of fat, but also loses her eye-sight during lactation.

I regret that, through a mistake of the patient's, the above case was not examined with the ophthalmoscope. As the anæmia was slight, if any, I am inclined to believe that the amaurosis arose from organic change, as fatty degeneration, rather than from defective circulation in the retinæ.

Case XIV.—Foreign Body for Sixteen Years loose in the Anterior Chamber.

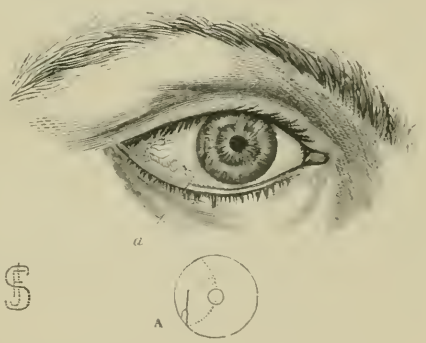
By Mr. Critchett.

In June, 1856, a young farmer applied to me for advice, under the following circumstances:—He stated that, whenever in reading or writing he leant his head forward, he felt something glide along in his left eye in such a way as to get in front of his sight and obscure the object. On examining the eye, when the head was bent forward, a small piece of glass could be seen on the inner surface of the cornea, and as the head was raised it could be seen gradually to slip back and to rest in the sulcus formed by the ciliary attachment of the iris and the sclerotic. When in that situation it became invisible, but could be made to rest upon any part of the surface of the cornea by altering the position of the head. The history given by the young man was as follows:—About sixteen years previously, he was amusing himself with a small glass toy, the object of which was to produce a slight explosion when held in a candle; he felt a small fragment of the glass strike his eye. This was followed by some slight inflammation, which speedily subsided, leaving the symptoms above described. The eye had been subject, from time to time, to slight attacks of inflammation, and generally felt weak; this, together with the dimness of vision, induced him to seek relief. The patient having been seated in a chair, a broad needle was passed into the anterior chamber close to the ciliary attachment of the iris, and the aqueous humor was allowed to flow out. The minute and transparent particle of glass was not seen, but it either escaped through the wound, or became entangled in it, as it never occasioned any further inconvenience. The eye was examined more than a year afterwards; it was perfectly healthy, and vision was good. Nothing had been seen or felt of the foreign body since the operation. The remarkable feature in this case would seem to be the residence of a foreign body in the eye for so many years, and in a constant state of movement, with such slight irritation, and with no injury to the organ.

Case XV.—Metal Fragment suspended in the Anterior Chamber.

By Mr. Wordsworth.

J. E., aged 23, a blacksmith, while working at his trade, received a blow on his right eye from a small piece of iron, which was followed by considerable pain and redness, with loss of vision in that eye. This re-appeared about two and a half years ago. He applied at the Ophthalmic Hospital in August, 1858, on account of the defective sight in the right eye. At that time he could just distinguish fingers held before him, and had many floating muscæ. The lens had disappeared; the pupil was occupied by opaque membrane, the motions of the iris being free. Two needles were used to clear the pupil, and good vision, with a lens, resulted. In December of the same year he applied again, on account of an attack of iritis, which at once subsided under the influence of counter-irritation by a blister. A careful examination through a dilated pupil failed to detect a foreign body, which was considered to be probably the cause of iritis.



a. The suspended foreign body.

A. A diagram showing the direction, across the pupil, of the swing it would take, laterally.

At the next visit a small fragment of iron was observed in the anterior chamber, and had set up considerable irritation. The foreign body was in contact with the anterior surface of the iris, at its outer part, and appeared to be suspended by a film of vitreous, as it moved from its position by change of attitude, and at once resumed it, on restoring the direction of the head.

A small scar was evident in the cornea at its inner and lower part, through which the fragment had probably entered, and a slight slit in the substance of the iris, a little below the scar, as though the fragment had thus passed into the posterior segment of the eye, and had been accidentally projected through the pupil after the lens had been absorbed, and the opaque membrane lacerated with the needle. A small aperture was made in the margin of the cornea with a broad needle, and the fragment seized with the cannula forceps and withdrawn. It was chemically examined and proved to be, as supposed, a spiculum of iron. A slightly deformed pupil and tremulous condition of the iris exist; but at the last visit his sight was gradually improving.

Case XVI.—Removal of a Chip of Iron, lodged between the Iris and Lens, the Lens uninjured.

By Mr. Hulke.

John Lucan, a healthy young man, 22 years old, a millstone maker, applied at the Royal London Ophthalmic Hospital, February 15th, 1858, his left eye having been struck by a splinter, whilst he was at work, on the preceding evening. The conjunctiva was red and slightly chemosed; the iris was bright and active; at the outer border of the pupil was a small but conspicuous greyish object, which projected very slightly into the area of the pupil, and extended outwards, behind the iris, for about one-sixteenth of an inch. A faint linear scar in the cornea, opposite to the pupil, was only detected by close examination. The sight was only slightly affected, and he was quite free from pain, except when out of doors.

On the supposition that the grey object behind the iris was a splinter of stone, Mr. Bowman determined to remove it. An attempt was made to seize it with a cannula forceps, introduced through a small incision, at the inner edge of the cornea; a small shred of lymph came away in the grasp of the forceps, and exposed to view a minute scale of metal, which it had enveloped. The scale was easily removed with the scoop of a curette; it must have flown off his chisel. He presented himself again on the 23rd; the eye was not

inflamed, the pupil was active and circular; the lens was clear, and his sight uninjured.

Case XVII.—Extraction of a Chip of Iron lodged in the back of the Lens—Removal of the Lens by Linear Extraction.

By Mr. Hulke.

———, a farmer, 32 years old, consulted Mr. Bowman, on May 11th, 1858.

On the 8th of April a chip of iron flew off his chisel, and hit his right eye. It became a little inflamed, but got well in a week. On May 7th the sight of this eye became misty, and rapidly got worse. Mr. Bowman detected a minute cicatrix near the outer edge of the cornea, and observed a small black speck on the outer part of the iris. The nature of this speck was doubtful; it might be a minute ecchymosis, or a small dot of uvea, or a hole in the iris. The ophthalmoscope proved the last supposition to be the correct one. The pupil was dilated with atropine, and the lens was seen to be semi-opaque in all its superficial parts; and near its posterior surface, below the nucleus, a small fragment of iron was plainly visible. When the pupil was dilated, the fragment could be seen with the naked eye, by reflected light.

Mr. Bowman recommended its immediate removal, before the increasing opacity of the lens concealed it from view. The patient was placed under the influence of chloroform, and a needle was passed through the cornea backwards, into the lens, the point being directed obliquely behind the bit of iron, which was then brought forwards to the front of the lens, whence its removal was easily accomplished with a curette, introduced through a small wound in the border of the cornea, as in Gibson's operation; lastly, the soft lenticular matter was removed through the same opening, and a clear, black, circular pupil was obtained. No inflammation followed the operation, and the patient went home in a few days with good sight.

Case XVIII.—Apoplexy of Choroid (?) and Retina.

By Dr. Bader.

John Hipkin, aged 27 (under the care of Mr. Hulke, clinical assistant to Mr. Bowman, January 18th, 1858).

This patient, a fireman to a steam-engine, had been in good health until two years ago; he then felt, coming on gradually, pain at a spot between the spleen and the stomach; and this increased so as to keep him from work. The bowels, before regular, began to be confined, but he succeeded in keeping them open with Pil. rhei co.; if the bowels were left confined for two days, a severe pain in the head, with sickness, etc., appeared. This had continued for five months, when the patient observed a small pulsating tumour an inch above and a little to the left of the umbilicus. During the last four months the patient was much troubled with sleeplessness; he never slept more than two or three hours, he cannot lie on the back (if doing so the tumour does not appear to "lie right"), only a short time on the left, and only comfortably on the right side; he feels most comfortable when slowly walking about, and in cold weather; his appetite has been failing since the commencement of the pain, which increases by irregularities of diet. The patient has lost three stones in weight within the last two years; he suffers from violent palpitations of the heart when anything surprises him, not at other times. The father of the patient died at the age of 49; the mother (after a confinement) when 29 years old.

Present state.—The patient looks yellowish and thin; his movements are slow, on account of the pains in the abdomen; the heart is slightly hypertrophied; the lungs are normal; a well-defined, fixed, hard and pulsating (synchronous with the systole) tumour is felt above and a little to the left of the umbilicus; it is very painful to the touch. A small aneurism is perceptible on each femoral artery, just beneath Poupart's ligament; the urine appears to be healthy.

A fortnight ago the patient observed his sight becoming defective; he had slight pains at the back of the eyes, which soon subsided; vision remaining the same. The exterior of both eyes now appears healthy; the pupils act slowly but regularly. The patient tells the time on a distant clock, at once, and reads large, but not small, print fluently at an ordinary distance; having had very perfect sight before, he wishes his eyes examined.

Ophthalmoscopic examination.—Both eyes: the appearance of the fundus of either eye resembles the other; the media are transparent; the vitreous appears normal (Plate VII, A, 1); the entrance of the optic nerve can only be recognized by the retinal vessels passing through it: its surface is of a

deep red colour; the vessels radiating from it, through the retina, are large, equally dilated, and tortuous, some are interrupted at places, others disappear in blood effusions, in others one side of the wall appears to have given way, the effused blood being arranged in red parallel striæ (this arrangement is probably due to the blood being effused immediately beneath the radiating optic nerve tubes). The retina, though transparent, has a peculiar brilliant appearance; the entrance of the optic nerve, and the retina next to it, are thickly sprinkled with blood spots; the circulation in the vessels at the entrance is not so easily stopped as is usual in retinal apoplexies; the blood can be pressed out of the vessels, whereas the blood spots remain undisturbed. The red of the choriocapillaris appears pale but uninterrupted, except at and around the yellow spot (Plate VII, A, 2). This part of the fundus consists of an irregularly edged, brilliant white central and brownish-white peripheral portion, the latter of which insensibly passes into the red of the fundus; few small blood spots are sprinkled over the white portion; its centre is occupied by a brownish patch (yellow spot?); a faint indication is seen of one retinal vessel passing over this portion. The appearance of this portion of the fundus, *i. e.*, the disappearance of the choriocapillaris and the brownish striæ, etc., may be caused by an effusion of blood between the sclerotic and the choroid (emanating from the large choroidal vessels); and the vitreous being healthy and resisting, it appears probable that such an effusion would interfere with the choriocapillaris, etc.; also the sight is so little interfered with at this important spot, that the retinal elements can not be considerably disturbed. The appearance of the optic nerve and yellow spot in either eye is exactly the same; the peripheral portion of the choroid and the retina appears healthy.

The patient left the hospital at his own request; and I hear that he suddenly died, the same day, on leaving the railway carriage.

OPHTHALMIA AS A RESULT OF THE USE OF ARSENICAL WALL-PAPERS.

By Dr. Alfred S. Taylor.

(*Received January 12th.*—Ed.)

As it is now a demonstrable fact, that a fine dust or powder containing arsenic is evolved from the walls of rooms which are covered with arsenical or *emerald green* papers, it becomes a question whether some obscure cases of inflammation of the conjunctiva may not be traced to this cause. Arsenic, it is well known, has a powerful action on the mucous membrane: when taken in small doses at intervals, one of its marked effects consists in producing irritation and inflammation of the conjunctiva, as well as of the membrane of the nose and fauces. These symptoms have been frequently observed in chronic poisoning by arsenic. The following case of a friend appears to support the view that exposure to an atmosphere containing an arsenical compound diffused through it, may produce this symptom of chronic poisoning by arsenic. I here quote the words of my friend as contained in his letter to me dated January 9th, 1858. In reference to his library or sitting-room he says :—

"The library was papered in 1853 with a brilliant green flock paper, but owing to the bad draught of the chimney one of the windows was generally kept open with or without a fire. This naturally prevented my using the room much; but about a year or more afterwards, the defect seemed to cure itself, and it has not since given the same inconvenience. I on two occasions made a more than ordinary use of the room. The first time was during the winter of 1856–7, when my mother was abroad, and it was my only sitting-room; and the second time was during the spring of 1858, when I was busy with some literary work. Both these occasions were followed by an attack of illness, consisting of great depression, a want of interest in anything, a husky

feeling in the throat, and a soreness and irritability in the eyes. It was not until you analyzed my paper in the summer of 1858, that I was aware of its containing arsenic. I then ordered it to be pulled down, which was done while I was in lodgings. I had, however, the book-cases carefully covered with thick cloths to prevent the oak being splashed by the decorators, and these cloths were not removed until the new papering was completed. The paper was, I believe, removed by wetting it, so that no dust would be created in the operation. We may safely, therefore, assume that any dust in the book-cases, which are all glazed, must have been there before the papering was altered. After my gradual recovery from my attack of illness in the summer, my eyes were comparatively quiet until my return to town, when I took possession of my new room, and commenced dusting the books in the book-cases which had probably not been thoroughly dusted for two or three years. After dusting several of the cases, I was again troubled with inflammation of the eyes which made me think of the possible effect of the dust. I therefore discontinued operations and gradually recovered. I left two book-cases undisturbed, from one of which you will remember that we obtained the dust which you lately analyzed."

It was the discovery of arsenic in comparatively large quantity in this dust which led me to institute further inquiries resulting in the discovery that the green arsenical pigment must, when the paper is unglazed, be continually escaping in an impalpable powder from the walls. An optician from whose shop I obtained additional evidence of the escape of the green pigment from the walls, informed me that the eyes of the men employed to hang the paper were affected, although at that time he had no suspicion of the cause.

When I saw my friend (whose case is above related), pending the second attack, the conjunctiva of the lids was of a deep red colour, along the tarsal margins and at the angles. The lids were slightly tumid and had a tendency

to eversion. Vision was painful. It was the apparent connexion of this second attack with the dusting of the books which led him to request me to examine the dust.

Since that time I have received several communications on the subject, bearing out the view that this insidious form of arsenical poisoning may be productive of inflammation of the conjunctiva. A medical practitioner resident in the country, since his occupation of one of these arsenical chambers for a few months, had suffered from mucous derangement of the bowels, colic, and inflammation of the tarsal portions of the conjunctiva. I examined the wall-paper, and found it loaded with arsenic, coarsely laid on and easily detached by the slightest friction. A well-known member of the profession in London, who has published his own case, informed me that he had been out of health since he had occupied a room, of which the walls were covered with a green paper, and that he had suffered from inflammation of the eyes. I found arsenic in the dust collected from the picture-frames hung in the room.

These facts appear to show a close relation of cause and effect. It is said that the men who manufacture the paper do not suffer, but so far as I can ascertain, the colour is ground and well mixed with water. It is laid on the wall-paper in a wet state, and thus the workmen are not exposed to the same amount of risk as those who live in chambers where the paper is hung in a dry state, and where, from the porous nature of the composition (whiting and arsenical green) changes in humidity and temperature may lead to the separation of portions of the noxious pigment. The glazing or sizing of the paper may to some extent prevent these accidents by giving a more permanent fixing to the material.

A well-known manufacturer of "night-lights" in London, informed me that when the green (arsenical) paper was used for wrapping the night-lights, the men who cut the papers suffered very much in their eyes, and could only work at it for a few hours. I informed him that the use of this pigment

for night-lights was very dangerous, since the smouldering of the paper in a close room might produce serious effects. He now uses other and innocent colours.

I believe that the first attack of inflammation of the eyes, from which my friend suffered, was the result of the *constitutional* effects of slow poisoning. I give this opinion because there were other symptoms from which he suffered also indicative of the constitutional effects of arsenic. The second attack was probably dependant on the *local* action of the arsenical dust. It came on *rapidly*, and was not, so far as I am informed, attended with the other constitutional symptoms. In the two other cases, of medical men, referred to in my paper, the whole of the facts point to a *constitutional* action of the arsenical dust bringing on an attack of inflammation of the conjunctiva *gradually*.

This probable cause of one form of ophthalmia is worthy of the notice of ophthalmic surgeons.

ON CATARACT IN ASSOCIATION WITH DIABETES.

By Mr. France.

(*Received February 8th.*—Ed.)

The subjoined cases may, perhaps, be of service in directing the notice of the profession to a complication, and apparently a cause, of cataract, which has been but cursorily alluded to by authors.

Some years ago, while Dr. Babington still adorned the medical staff of Guy's Hospital, a patient, about middle age, was admitted under his care for diabetes; and was undergoing treatment for that complaint when attention was drawn, in a fresh direction, by the failure of the man's sight. I was consequently requested to see him; and upon examining the organs of vision found that opacity had, without

assignable cause, arisen simultaneously in both crystalline lenses, the capsules remaining clear. The cataracts were evidently soft, as indicated not only by their rapid formation, but also by their large bulk, and irregularly opalescent aspect.

This was the first case of cataract, in the peculiar relation in question, which I had encountered; and considering the extinction of useful vision, the probably indefinite duration of the urinary malady, the fair state of general health in other respects, and the opportunity of repose which a residence in hospital afforded, I was induced to recommend operation, and performed keratonyxis accordingly. No benefit, however, accrued; the corneal puncture remained unhealed, and fistulous for a long time; the aqueous humor, draining away as soon as secreted, could not act as a solvent on the lenticular substance; and hence, although the attempted remedy did not awaken any active inflammation, no diminution of the cataracts, and no improvement of vision resulted up to the time when the patient quitted the hospital and was lost sight of. The case could scarcely be quoted as an infraction of the fundamental law of physic *saltem non nocere;* still, in the most favourable point of view, the issue was negative, and taught distinctly enough the necessity of great caution in the treatment of similar cases.

The next example which I have to adduce was not under my own care; it enforces still more strongly the lesson derived from the preceding case.

Rebecca F., aged 48, came within my observation in May, 1845. She was a thin, feeble person, who had been suffering from diabetes for some time; the specific gravity of her urine was 1045. Both eyes were affected with cataract, and had been much in the same condition for four months previously. The opacity was principally, but not exclusively, seated in the deeper strata of the crystalline on each side; and consequently, from the natural colouration of

that body at this age, presented an amber tint, imparted by the more transparent layers in front. The capsules were healthy, the pupils active, and the degree of vision quite proportionate to the remaining permeability of the lenses to light. The right cataract, which was the more advanced, was selected for operation; and the surgeon, perhaps mistaking its yellowish colour for an indication of hardness, pierced the sclerotic for the purpose of depression. This, however, proving impracticable—for the needle passed freely through the soft texture of the lens—the point of the instrument was brought forward through the pupil, the capsule opened, and the cataract freely divided. One operation sufficed; but not for cure. My last note, taken two months afterwards, states that the iris had become universally adherent, and the pupil contracted, and blocked up.

The next case occurred in the clinical ward of Guy's, from the records of which it is abridged; and the medical features and history are in consequence more fully detailed than in either of the preceding instances.

Harriet B., aged 19, a domestic servant, of fair complexion, light-brown hair, and blue eyes, living at Southampton, was admitted under the care of Dr. Addison, on October 11th, 1854.

Up to two years previously she had enjoyed good health, and was a stout hearty girl; but about that time she caught a severe cold from exposure in washing, and was compelled to quit her situation exceedingly ill. Shortly after this she first began to pass large quantities of urine. The catamenia had been established when she was fifteen years of age, and had continued regular up to the period of her illness, but had not appeared since. She was free from chest affection, and of a healthy family.

On her admission into the hospital there was found extreme emaciation of the whole body; the skin was hot and dry; she experienced great thirst, voracious appetite, and frequent swelling of the legs. There was a slight hectic

flush on either cheek. The pulse was small, but regular, 104; the tongue red, moist, tolerably clean, but fissured; and the gums were spongy.

The pupils of the eyes were dilated and indolent. Vision had become impaired for the last three or four months, and had progressively deteriorated; so that she was now unable to work at her needle by candlelight or bright daylight. The urine averaged from about a gallon to a gallon and a half per diem; was of a pale colour, peculiar sweet odour, not albuminous, of specific gravity 1032, and contained a large quantity of sugar.

Mr. France, by request of Dr. Addison, examined the patient's eyes on October 17th, and found both pupils dilated and inactive. They were occupied by large, irregularly opalescent, cataracts; which, by their great bulk, protruded the irides in a convex form, and seemed to impede their motions by direct mechanical pressure.

The patient remained in hospital some months, on account of the diabetes; but eventually left of her own accord, as the report states, unimproved. The cataracts, in the meantime, became more completely opaque, and all useful vision at last extinguished. Palliative treatment only, by belladonna collyria, was adopted for the ocular affection.

The last case I have to narrate, in illustration of the present subject, occurred among my own out-patients at Guy's. The existence of the parent disease, diabetes, was not intimated by the patient; it was only ascertained upon special inquiry, prompted by the resemblance which struck me, between the aspect of the cataracts in this individual and that presented by the cases of the same complication which I had previously witnessed. The woman merely applied for relief to her failing sight; but upon the verification of my suspicion, the following account was kindly taken by our late house-surgeon, Mr. Mc Dougal:—

Martha A., aged 30, a print colourer, of fair complexion, residing in Walworth, became an out-patient, under the

care of Mr. France, on the 19th of June, 1857. She was married; had had four children, and had habitually enjoyed moderately good health, with the exception of occasional attacks of rheumatism. Her family were in general healthy, and there was no evidence of a syphilitic taint. About four years previously to her application at Guy's, and three months after the birth of her last child, she had had rheumatic fever, and subsequently began to suffer from extreme languor and debility, feverishness, pain in the back, cramp in the legs, and swelling of the lower extremities.

She was troubled with an abundant secretion of urine, and frequent micturition; her appetite and thirst became inordinate, and the former perverted. About eighteen months before admission the catamenia ceased entirely; and the cutaneous surface, which had usually been moist and perspirable, now became continuously dry and parched. The thirst and voracity of appetite increased; her tongue became arid and cracked, the fauces dry, the teeth were gradually eroded and broke off; she suffered from palpitation and faintings; her bowels became excessively costive, and the stools scybalous and black. The urine grew still more copious; was pale and frothy when first passed, and after a while deposited a thick, white, sticky sediment, which encrusted the utensil, the orifice of the meatus, and the adjacent parts.

About four months before applying at Guy's, she first perceived impairment of the sight of the right eye, and in a short time vision became completely extinguished. Two months afterwards the left eye began to suffer in the same manner, and soon was also blind. On presenting herself at the hospital, she was only able to appreciate light and passing shadows with either. On examination, the tunics of the eyes were found healthy; but the aqueous chambers were rendered shallow in consequence of the irides being pressed towards the cornea by large, soft, lenticular cataracts, which occupied the entire area of the pupillary apertures.

The urine was pale, frothy, copious, without any particu-

larly sweet odour; but proved to contain a large amount of saccharine matter, on the application of both Moore's and Trommer's tests. Its specific gravity was 1040. This patient, perhaps discouraged by overhearing her condition spoken of unfavourably, did not continue her attendance at the hospital.

I shall add but few remarks to the foregoing cases. There can, apparently, exist no doubt as to the dependence of the cataracts upon the diabetic malady; in fact, the occasional connection between the two diseases has been observed before. But why the connection, if real, as I believe, and not a mere coincidence, is so seldom comparatively exemplified; and what is its nature—beyond the mere general statement that it has relation to the nutritive function, which throughout the body is affected in diabetes—I am not prepared to explain. It may be observed, however, that this complication is probably of more frequent occurrence than is suspected; and that the few illustrations, which, having noted circumstantially, I have been in a position to relate in this paper, are not (unless my memory deceives me) all which have fallen within the scope of my own individual experience.

This brings me to speak of the characters which the cases in question have displayed, and which have been sufficiently uniform to enable me to recognize the last instance as one of their category, before any complaint of urinary disorder was preferred by the patient. The cataracts have in every example been symmetrically developed on both sides; the lenses have increased remarkably in their antero-posterior diameter, so as to encroach upon the depth of the anterior chamber, and even to interfere mechanically with the free play of the iris. The opacity has attacked portions of several strata of the crystalline at once, leaving intermediate spaces for a while transparent. The colour and bulk of the cataracts have invariably indicated their soft consistence, which was proved by operation in two persons, though respectively of "middle" and of forty-eight years of age.

Lastly, the ocular affection has only arisen after a considerable duration of the renal malady (a circumstance which may tend in some degree to account for the comparative rarity of their union); and there has, in no case, been reason to suspect further disease of the eye-ball.

In conclusion, I must advert to the proper treatment of this class of cases. My experience would lead me strenuously to deprecate any operative interference with them, so long as a useful degree of vision is preserved; and to adhere to palliative treatment by mydriatics for a longer time, than in ordinary cases of cataract would be expedient or right. This recommendation is chiefly founded on the indisposition of the cornea to heal even the minute wound inflicted by a needle, as illustrated by the first of the above examples. A period, however, arrives, when all useful vision is extinguished; and then, unless the general powers are rapidly failing, there can be no doubt of the duty of attempting to afford relief. Depression (if not on other grounds to be discountenanced) would be clearly inapplicable here, as indicated by the uniform signs of softness, and as established by the second case, wherein the needle, introduced to effect this operation, passed smoothly through the very centre of the cataract. Extraction, even linear, is forbidden; for the reason just assigned against early operation, if the evidence afforded by Case 1 is entitled to any weight.

There remain, therefore, only the varieties of the operation for solution available, and I should have no hesitation in again selecting keratonyxis by preference to any other mode. In performing it, the surgeon should be more than usually scrupulous, to employ a needle of the greatest delicacy; to make sure that the shaft will completely fill the aperture made by the point; to confine his first manipulations to a narrow area in the centre of the capsule; to effect his purpose at that spot steadily, in as brief a time as may be; and carefully to withdraw the needle, with the flat surfaces of its point as they were introduced, parallel with the plane of the iris, and thus to avoid the minute crucial wound otherwise necessarily

inflicted. The neglect of these precautions, by permitting escape of the aqueous humor, would probably render the whole process abortive. Had they been fully observed in the first case narrated above, its issue might have been different; but they were not at that time recognized by surgeons as essential in a well executed operation on an ordinary case; nor, of course, in one of the particular class we are considering. When, however, the diminution in the normal quantity of the aqueous solvent—demonstrated by the advance of the iris towards the cornea; the pressure to which that remaining quantity is subjected; and the doubt, whether an external communication with the chamber, once opened to the humor, will ever be sealed against it by the healing process, are regarded by the light which the case just alluded to affords; the extreme, the vital importance of these minutiæ, under similar circumstances, becomes at once apparent.

EXTRACTION OF A FOREIGN BODY FROM THE VITREOUS CHAMBER.

By Mr. Dixon.

(*Received January 17th.*—Ed.)

James Perkins, a cooper, aged 24, came to the hospital, December 2nd, 1858, half an hour after receiving an injury to the left eye. As he was knocking an iron hoop off a cask, the edge of the chisel broke, and a chip of metal flew off and struck his lid. A small vertical wound, a little above the margin of the left upper lid, marked the spot where the chip had penetrated the skin. On everting the lid, I found a corresponding wound in the conjunctiva covering the tarsal cartilage. In the sclerotic, nearly on a level with the upper border of the cornea, and about a line from its inner edge, was a small, gaping wound, a line long,

surrounded by a patch of blood effused beneath the conjunctiva. A minute vesicle of vitreous humor showed itself in the opening. The pupil was active, and the patient could read large type, but saw all objects through a slight mist.

I at once dilated the pupil with atropine, and examined the eye with the ophthalmoscope. At the upper and inner portion of the pupil was a clot of blood, behind the lens, hanging down from the wound, and slightly waving to and fro in the vitreous humor. The rest of the humor was perfectly clear, and, as the cornea and lens were also quite transparent, I obtained a good view of the retina. Just below the optic nerve I noticed a small, rounded body, looking almost like a minute air-bubble, and it appeared as if this globule were a portion of clear lymph, effused around a foreign body which was assumed to have entered the eye. There was, however, no redness surrounding this little globule; and this absence of vascularity made me doubt that what I saw could really be lymph.

A light pad of cotton-wool and a bandage were applied over the closed lids; rest and temperance enjoined; and a draught ordered to be taken every night, containing tinct. hyoscyami ʒi in camphor mixture.

On December 6th the little wound in the sclerotic was closing; there was no pain, and not much redness of the conjunctiva. Sight was less dim than on the patient's first visit, and he could read a good-sized type pretty easily. At the end of ten days the hyoscyamus was left off, and pot. iodidi gr. iv. ordered twice a day, in decoction of bark.

Sight continued to improve, and by the 30th all redness of the conjunctiva had disappeared; the little wound in the sclerotic (*a*) presented a hardly traceable gray line; there was no intolerance of light. I dilated the pupil, and made my second examination with the ophthalmoscope.

I could no longer detect the little globular body which, on the patient's first visit, I had noticed near the optic nerve, and I am still at a loss to explain its nature. At a sudden turn of the globe there started from behind the

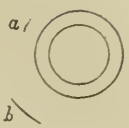
inner portion of the iris an oblong, black body, which was instantly recognized as a chip of metal. It was entangled in a few thread-like remains of clot, which kept it suspended in the vitreous humor, and allowed it to move freely backwards and forwards, while its movements outwards were checked by the body of the lens.

It is well known to ophthalmic observers that opaque bodies in the lens or vitreous humor assume very deceptive appearances as to their real position; and this foreign body, which was really behind the lens, seemed, when viewed upon the illuminated field, to be in front of the lens and on the plane of the iris. When examined by daylight, concentrated by means of a convex glass, the true position of the body was at once recognized, as it swung to and fro on a level with the equator of the eyeball.

Could the foreign body be removed? If left to itself, it would not long remain harmless; for, when the shreds of clot which were keeping it suspended should become absorbed, it must inevitably fall down on the retina or ciliary processes, and then no doubt would set up an inflammation, which would eventually destroy the eye. In penetrating into the vitreous humor by the route the body had taken in entering the globe, one would be almost certain to break through the suspending threads, and then the body must fall down out of reach. I determined, therefore, to penetrate into the vitreous humor from below. Every variety of illumination was tried, both by natural and artificial light, and in various positions of the patient; and, as the foreign body sank backwards and disappeared when the patient lay down, I gave up the intention of using chloroform, which would have rendered a recumbent position necessary.

As the suspending filament allowed the foreign body a certain degree of motion, it was suggested that magnetic attraction might be employed to draw it nearer to the surface. A powerful magnet was tried, but its action on the foreign body, although very decided, was not available; for, if drawn inwards, the body became hidden behind the iris,

and if drawn outwards, it came into contact with the lens, the very structure it was important to avoid.



The patient being seated in a chair close to a window, I stood behind him; the lids were separated with a spring speculum, and I fixed the globe by nipping up a fold of conjunctiva just above the cornea. Then I thrust a Jæger's lance-knife through the coats of the eye at *b*, directing the point of the instrument backwards, to avoid wounding the lens. Having withdrawn the knife, I passed in a forceps, invented by Assalini for catching the iris in his operation for artificial pupil, which opens when one of the branches is pressed, and closes again, by means of a spring, when the pressure is relaxed. I could obtain but a very dim view of the foreign body, for it was by no means brilliant, and only now and then glanced indistinctly as the light fell upon it. After two ineffectual grasps, I was so fortunate as to catch it by one end, and draw it out. The lids were immediately closed with plaster, and cold rags applied for a short time.

The foreign body proved to be part of the edge of a chisel. It was about a tenth of an inch long, and weighed a quarter of a grain.

On examining the eye, on January 6th, I found the pupil circular and its area clear. The patient could read the large type on his bed-ticket. The wound (*b*) made at the operation had drawn together. There was of course a small quantity of blood extravasated beneath the conjunctiva, but very little increased vascularity of the membrane.

January 13th. The pupil to-day had recovered from the effects of the atropine, and was round and contractile. There was no intolerance of light, and the patient could read a pica type. For the first time after the operation I made an examination with the ophthalmoscope. A few threads of clot, quite unattached, were floating in the vitreous humor. The lens was perfectly clear. The only appearance I could call morbid was a slight reddening of the retina

and optic nerve, the effect, probably, of a slight traumatic inflammation from the recent wound.

March 3rd. Under treatment the irritation of the retina subsided; but, to prevent any risk of its recurrence, I abstained from using the ophthalmoscope until to-day. The perfect transparency of the lens allowed of my thoroughly examining the retina. It seemed quite healthy, and the only morbid appearance I could detect in the eye was a single opaque filament, floating in the vitreous humour. The patient's sight was steadily improving.

The points in this case to which I would draw attention are the following. When the patient was first seen, it appeared unlikely that the fragment of metal had entered the cavity of the eye-ball, inasmuch as the wound in the skin of the lid was so much larger than that in the sclerotic. Wounds of such different length might have been produced by a wedge-shaped body which had fallen off again after its point had just pierced the sclerotic. It seems, however, that the skin was first struck by the long edge of the fragment, which then, in passing through the tarsal cartilage, turned, and presented its narrow end to the sclerotic.

The deceptive appearances of the foreign body, when first seen with the ophthalmoscope, I have already alluded to; and although the fragment itself could be far more distinctly seen with the ophthalmoscope, I felt myself compelled to operate by natural daylight (dull as that was on the day in question) as, by that light only could I at all judge of the true position of the fragment. The impossibility of obtaining a distinct and continuous view of it was the chief cause of difficulty in the operation, although the narrowness of the space within which an instrument could be moved with safety—the *transparent* lens being on one side, and the retina on the other—was an additional difficulty. Of course the wounding of the lens would have been a trifling evil in comparison with the benefit which the extraction of the foreign body ensured to the patient.

The forceps I employed was not the best instrument I

could imagine for the purpose, but the best I had at hand, and the delay of a day might have caused the fragment to break its slender attachment, and fall down upon the retina.

I need hardly say that in a case like the present, as in those cases where a small body has to be caught in the cavity of the bladder, there is a certain lucky chance, without which the most skilful manipulations may fail of success.

DACRYOPS, DACRYOPS FISTULOSUS PALPEBRÆ SUPERIORIS;

Or, Lacrymal Cysts and true Lacrymal Fistula.

By Mr. Hulke.

(*Received January 6th.*—Ed.)

Cysts in the upper eyelid, in connection with the excretory ducts of the lacrymal gland, and occasionally complicated by fistulous openings upon the cutaneous surface of the lid towards its temporal angle, were, I believe, first accurately described by Dr. J. A. Schmidt, in a treatise on the diseases of the lacrymal gland, published in Vienna, 1803, in which two cases, that had fallen under his own notice, are mentioned. Beer, in the second volume of his "Lehre von den Augenkrankheiten," 1817, says that he had seen six cases of this kind. He describes lacrymal cysts under the name of Dacryops, which Schmidt had applied to them; and he also gives a short account of true lacrymal fistula, but he appears to have imperfectly understood its morbid anatomy. Since his time the affection has been mentioned in most of the larger systematic works on the diseases of the eye and its appendages; but very few authors seem to have written from a personal acquaintance with the subject, a fact which proves its extreme rarity.

Dacryops commences as a small cystic tumour, first noticed

in the upper and outer part of the upper eyelid. The skin glides freely over it, but the tumour extends backwards beneath the border of the orbit towards the lacrymal gland. If the lid be drawn up on to the brow, and pressure be simultaneously applied in a downward and inward direction, a tense, elastic, fluctuating swelling instantly starts out between the eyeball and the inner surface of the eyelid. So long as the cyst is small the natural movements of the eyeball are unrestricted; but when it has attained a large size, and especially if it has reached backwards beneath the margin of the orbit, it hinders the movements of the globe, and may even cause its protrusion. The most characteristic and striking sign of dacryops is the sudden enlargement which the tumour undergoes when the patient cries. An attempt to extirpate such a tumour with the knife will generally fail, because the cyst is so delicate that it is hardly possible to dissect it away entirely, and if the wound should heal a tumour soon forms again. More frequently the wound does not perfectly heal, but a very minute fistulous aperture remains permanently open in the skin of the eyelid, from which the limpid secretion of the lacrymal gland continually oozes drop by drop. In this case the cyst causes little or no swelling in the lid, because the tears escape freely and do not distend it.

Lacrymal cysts are most commonly a consequence of mismanaged abscess, or of neglected wounds, attended by prolonged suppuration in the upper eyelid. The first step in their formation is the obstruction of one or more of the excretory ducts of the lacrymal gland, either at the external orifices in the upper sulcus of the conjunctiva, or at some other point nearer the gland. The escape of the tears being prevented, they accumulate and distend that portion of the duct above the obstructed point, in connection with the lacrymal gland. But these cysts have not invariably a traumatic origin; they are sometimes congenital. Schmidt took this view of two cases which came under his notice. He imagined that, by a congenital malformation, some of

the excretory ducts terminated in the cellular tissue of the upper eyelid; that the secretion of the lacrymal gland was poured into the interstices and formed a kind of cyst by distending one or more such space which, as it enlarged, acquired a capsule by the condensation of the surrounding cellular tissue. Thus the formation of lacrymal cysts has been explained in two ways: one is by the uniform distension and dilatation of an excretory duct; the other by the distension and expansion of the interstices of the cellular tissue. But whatever their origin may be, it has no practical bearing on the treatment; and it is very important to bear in mind that, if these cysts be opened through the skin, a permanent fistula will probably result, and this may become the most prominent symptom, especially if the escape of the tears allows the cyst to collapse.

The successful treatment of dacryops, with or without fistula, depends on the artificial formation of a permanent opening for the escape of the tears on the inner surface of the upper eyelid; and when this has been accomplished the closure of the fistulous orifice on the skin can be attained without difficulty.

Case I.—Dacryops fistulosus. (*Mr. Bowman, R.L.O.H.*, 1858.)

Caroline Bewley, aged 27, a glove maker, applied to Mr. Bowman, at the Moorfields Hospital, May 25th, 1856, on account of a troublesome trickling of tears from a small hole in the skin of the upper lid of her left eye. Her mother had previously brought her to the hospital, when she was a child of nine years old, with a swelling in the upper eyelid, which was, at first, said to be a tumour; but it afterwards suppurated, was lanced, and a hard body, resembling a plum-stone in form and size, was removed from it. The wound did not completely heal, and from that time tears have always oozed from a minute aperture in the skin of the lid; they ceased to flow for a short time eight years before she came

under Mr. Bowman's care. This cessation was followed by an abscess in the upper eyelid, and both the eyelids became so greatly swollen as completely to hide the eye itself. When the abscess broke, all the swelling of the lids subsided, but the fistula reappeared, and tears trickled from it as before. When she came to the hospital in 1856 I made the following memorandum of her condition at that time :—

"In the skin of the upper eyelid of the left eye, near the outer end of the lid, and at about one-eighth of an inch from its free border, there is a small orifice in the skin, from which a colourless limpid fluid continually oozes drop by drop and trickles down her cheek. It has a faint alkaline reaction, perfectly resembles tears, and does not excoriate the parts over which it flows. The aperture just allows the introduction of a fine probe, which can be passed for about half an inch upwards towards the lacrymal gland, and a careful examination shows that the fistula communicates with a cyst which occupies the outer half of the upper eyelid, but being collapsed does not cause any swelling. The cornea has its natural brightness; there is not any redness of the conjunctiva, nor does she complain of any sensation of dryness in the eye."

The connection of this cyst with the excretory ducts of the lacrymal gland could not be doubted, and it immediately became apparent that some provision must be made for the escape of the tears on the inner surface of the lid before the closure of the orifice in the skin could be undertaken with success. This was accomplished with a seton in the following manner:—

A single thread of silk was armed with a needle at each end, and one of the needles was introduced into the fistulous orifice in the skin on the outer surface of the eyelid, and carried for a short distance upwards; it was then made to pierce the fibrocartilage of the lid and the conjunctiva, and the

thread was drawn out at the inner surface of the lid. A similar manœuvre was repeated with the other needle, and the thread was drawn out at the inner surface of the lid at the distance of a quarter of an inch from the first, and a little nearer the attached border of the lid. In this way the cyst was pierced at two points by the thread which encircled in a loop the small intervening portion of tissue. The two ends of the thread were then brought out at the outer commissure and secured upon the temple with a piece of sticking plaster.

The presence of the thread occasioned very slight annoyance; the conjunctiva, lining the upper eyelid, became a little swollen and injected; and tears continued to flow from the orifice in the skin, but less abundantly. Ten days afterwards the thread was replaced by a thicker one, which produced more irritation, and the conjunctiva immediately around it became slightly granular. An attempt was now made to close the aperture in the skin. It was drawn out with a forceps and cut off with scissors, together with the little piece of skin immediately around it. The fibres of the orbicularis palpebrarum were then seen covering the outer surface of the cyst, which was extremely thin. The edges of the wound were brought together with two serres fines, which were replaced in the evening of the same day by slips of plaster.

When she was next seen, after an interval of four days, the wound had quite healed, and the fistula in the cutaneous surface of the lid had perfectly closed. No tears had accumulated in the cyst, but one week after the operation a small quantity of mucus had collected in it; this could be easily squeezed out by the side of the thread through the opening on the inner surface of the lid. The thread was now withdrawn, and the small bridge of tissue which had been encircled by the loop cut out. This opening in the conjunctiva continued patent, and there was no further collection of mucus, nor of tears in the cyst.

Case II.—Dacryops. (*Schmidt.*)

The patient was a boy. Having raised the upper eyelid, and caused the cyst to protrude between it and the eyeball, Schmidt punctured the cyst with a trocar, and let out half an ounce of fluid, upon which the cyst collapsed; it was then injected with a mixture of spirit of wine and water in the proportion of one to two. Stronger solutions of alcohol, of corrosive sublimate and of nitrate of silver, were afterwards employed. The use of these injections was followed by great pain and redness of the eye, but they failed to destroy the cyst. He then kept the trocar wound open with a tent for a long time; after removing which the wound remained open for a few days, and tears escaped through it, but it soon closed, and the swelling returned.

All further attempts were relinquished, and the boy's parents would not accede to a proposal which Schmidt made to remove a piece of the cyst with the conjunctiva lining the lid above the ligamentum palpebræ superioris, and render the opening callous and permanent by continued dressing.

Case III.—Dacryops.

The patient was a girl about 16 years old. Another surgeon, supposing it to be a common cystic tumour, had previously attempted to extirpate it, and the operation, a very protracted one, was followed by convulsions. The cut had been made through the upper lid. The swelling soon returned. During several following months a seton was used, and after it was withdrawn the patient was said to be cured, but the tumour soon reappeared.

The girl was then brought to Schmidt, who proposed to establish a permanent opening on the inner surface of the upper lid, as he intended to have done in the preceding case, but she had been so frightened by the severity of the operation which she had already undergone that she would not submit to another.

Case IV.—Dacryops fistulosus. (*Beer.*) *Translation.*

Once only, in a strong robust peasant, in whom the whole capillary canal was only about one and a half lines deep, and perfectly callous, I made the attempt to introduce a red hot sewing needle quickly to the bottom of the canal, and turn it round a few times on its axis, and indeed, on the fifth day, the inflammation had disappeared, and the capillary canal had perfectly closed. Yet I would by no means offer this single case as a precedent for the treatment of capillary lacrymal fistula, which penetrate more deeply; and, least of all, would I trust such a proceeding in the hands of every surgeon.

Case V.—Dacryops fistulosus. (*Jarjavay.*)*

—— Louis, aged 45, came under Mr. Jarjavay's notice May 21st, 1850.

On December 6th, 1844, he had been struck with a poignard on the outer part of the right orbital region and cheek. The wound suppurated during several months, and cicatrization was not complete till six months from the date of the injury. From that time a swelling formed in the outer part of the upper eyelid, a tumour from which pressure caused a transparent colourless fluid to spirt out. The lids were distorted, and the palpebral fissure was shortened by union of the lids at the outer angle. Above and to the outer side of the cicatricial commissure there was an oblong swelling of the size and shape of a small almond. It was soft, without any discoloration of the skin, and presented at the upper part a funnel-like pit, at the bottom of which was a narrow aperture, which could not be seen until the folds of the thin skin had been stretched out, and when the eye was open it was entirely concealed by the fold of the skin of the upper eyelid. The conjunctiva was a little red. He said that the swelling became larger when he walked

* De la tumeur lacrymale formée par la dilatation des conduits excréteurs des larmes, par Mr. Jarjavay. La Lancette Française, 1854, p. 493.

against the wind, and when the secretion of tears was provoked by any other stimulus. In order to empty it he was accustomed to press the tumour with the tip of his finger against the outer border of the orbit. His sight was unimpaired; prickings of the surface of the eye were experienced, and the movements of the globe were embarrassed. Usually he had no other inconvenience than that of being obliged to empty the cyst three or four times a day. It was larger in the morning after the night's rest.

Case VI.—Dacryops fistulosus. (*Jarjavay.*)

A piece of a broken glass bottle had hit a woman on the right eye. Both the eyelid and the eyeball were injured; the lid was tied to the globe, and the sight was destroyed. A swelling appeared in the outer part of the injured lid when the patient cried; it could be emptied on the conjunctival surface, by pressure, and not through the skin as in the preceding case.

Cases of
RUPTURE OF THE EYEBALL,
With escape of the Lens, and of Rupture of the Suspensory Ligament, with partial displacement of the Lens, only.

By Mr. Hulke.

(*Received January 12th.*—Ed.)

When the eyeball is burst by a violent blow, the rupture usually happens just where the sclerotica and cornea blend, or a little within the limits of the former coat. The most common situation of the rent is at the upper part, with an inclination towards the inner, more rarely towards the outer side, and seldom, if ever, below. The explanation of this lies

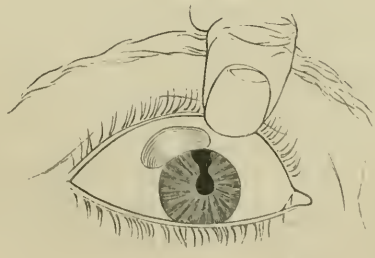
in the nature of the rupture which is produced by a sort of *contrecoup*; and the relations of the overhanging brow, upper border of the orbit, and projecting bridge of the nose effectually shield the eye against blows coming from above, or from the inner side.

In these injuries the lens is frequently squeezed out of the eyeball, through the rent; and either escapes entirely or is retained by the conjunctiva, which from its greater extensibility very often remains untorn. The shape and size of the swelling which the lens forms upon the surface of the globe, beneath the conjunctiva; the displacement of the pupil towards it; and the absence of a corresponding portion of iris, which has been drawn into and entangled in the rent, at once tell the nature of the accident.

The lens, in this situation, although generally comminuted and soon becoming swollen, is very slowly absorbed; and, as it often seems to keep up irritation, should be removed by dividing the conjunctiva over it. Very useful sight is often retained after these accidents.

Case I.

A young woman presented herself as an out-patient at the Royal Westminster Ophthalmic Hospital, in November, 1851, whilst I was a pupil there, under the late Mr. Guthrie. Three months previously she had received a violent blow on her right eye, from the shaft of a gig. The pupil was large and irregular, reaching upwards, and slightly outwards, to the border of the cornea, at which part the iris was deficient. There was a small roundish tumour upon the sclerotic, in the ciliary region, corresponding to the deficient part of the iris. This little tumour was covered by the conjunctiva, and had the



size and shape of the crystalline lens; a small cut was made through the conjunctiva, covering the tumour, and the lens started out. It was broken into several pieces.

When she was next seen, a week afterwards, the conjunctival wound had healed, but there was a protrusion of the vitreous humor, through the ruptured sclerotic, and the eye was inflamed. She did not return and the ultimate result of this case is not known.

Case II.

The memorandum I made of this case is very short, but the accompanying drawing sufficiently illustrates the nature of the accident. The patient, a young woman, was hit with a fist on the right eye. The globe was ruptured in the ciliary region, bordering upon the upper and inner margin of the cornea; the pupil was large and extended upwards to the rupture. The lens, covered by the conjunctiva, formed a small oval tumour upon the sclerotic at the situation of the rent.

Case III.

George Bartlett, aged 42, a costermonger, sought advice at the Royal London Ophthalmic Hospital, in the first week of October, 1854, having got a blow on his left eye in a fight, nine weeks previously. The blow was followed by total blindness. He was under treatment for a few days in St. Bartholomew's Hospital. Two or three days after the accident he noticed a little swelling upon the inner side of the eyeball. The inflammation, following the accident, subsided in about a week.

When he presented himself at Moorfields the following memorandum was made: "The iris is tremulous; the pupil very large, displaced upwards and outwards, extending quite

to the margin of the anterior chamber, the corresponding portion of the iris being deficient. Upon the sclerotic, bordering the pupil, there is a small, semi-translucent, roundish swelling, which is obviously the dislocated lens. He can distinguish large objects, but the outlines want sharpness; his sight is greatly improved by a convex glass."

On October 12th the conjunctiva was divided, and the displaced lens removed. The rupture of the globe was in the sclerotic, parallel with, and close to, the margin of the cornea; it had quite healed.

A similar accident befell his right eye, two years before, also in a fight.

He came under my notice again in October, 1857, at which time I took drawings of both eyes. In a drunken scuffle he had got a kick on his right eye, which was much inflamed and presented several small ciliary staphylomata. Leeches, purging, and a wet rag to the eye, in a few days, removed the inflammation. I tested his sight the last time I saw him; he could distinguish large objects well, and, with the aid of a convex glass, could read with either eye.

Case IV.

John Carty, 47 years old, a labourer, came to the Royal London Ophthalmic Hospital, November 30th, 1858, having, in the dusk of the evening, run against the shaft of a cart, which hit him on the right eye. Scarcely any swelling of the lids followed the accident, but he was in great pain, and the eye was quite blind.

Five days afterwards, when he presented himself at the hospital, the eye was very red and the conjunctiva a little edematous. The iris was tremulous: the pupil very large, drawn upwards and a little outwards to the margin of the cornea, where the corresponding portion of the iris was wanting. The area of the pupil was occupied by a filmy clot of blood, which swung to and fro with every move-

ment of the globe. The vitreous humor was so stained with blood that I could not illuminate the fundus with the ophthalmoscope. Lying upon the ciliary region of the sclerotic and covered by the upper lid, which it raised, was an oval swelling, the size of a small split bean; its lower border a little overhung the cornea. There could be no doubt that this tumour was the lens, dislocated.

Case V.—Very extensive detachment of the iris at its great circumference, and rupture of the suspensory ligament of the lens by a blow.

Abraham Saunders, 50 years old, a market gardener, had his left eye struck by a chip of wood, which flew up from a piece he was chopping. The sight was at once lost; but, after a week, it began to return, and several weeks from the time of the accident, he could read large type, but was short-sighted, which he had not been previously. The inflammation, which followed the injury, was treated with mercury and belladonna, and when he came under my notice at the Royal London Ophthalmic Hospital it had quite subsided. The cornea bore no trace of injury, but the iris was detached to the extent of two-thirds of its great circumference, the suspensory ligament had also been torn to the same extent, and the lens had fallen inwards and forwards, being nearer to the cornea than natural.

Case VI.—Laceration of the suspensory ligament by a blow: swinging lens.

Henry Jones, a labourer, was hit on the right eye by a splinter, which flew up from a piece of wood he was chopping.

Two months after the accident, he sought advice at the Royal London Ophthalmic Hospital on account of a strange and puzzling symptom, which had annoyed him ever since the eye was struck. He said that everything he looked at seemed to be jogging and moving unsteadily, and this, especially, when he stooped; when he remained quite still he had distinct perception of small objects. The iris was tremulous. When the pupil had been dilated, it was observed that the suspensory ligament had been extensively torn, and the lens hung suspended by the slip remaining at its upper edge, which acted as a hinge and allowed the lens to swing to and fro. This condition accounted satisfactorily for the apparent unsteadiness of objects, which so greatly troubled him.

REPORT

OF EXCISIONS OF THE EYE AND COLLATERAL OPERATIONS* PERFORMED AT THE ROYAL LONDON OPHTHALMIC HOSPITAL SINCE THE LAST GENERAL REPORT OF OPERATIONS, APRIL 1858, TO THE END OF THE YEAR.

By Dr. Bader, *Curator and Registrar.*

A. Excision of the eye has been performed in twenty-eight cases for *injuries*.

In none of the eyes was there any perception of light; and most of them were weakening the fellow eye. They were excised at different periods after the injury.

The pathological changes were briefly these—

In thirteen cases the globe was of a normal shape; the vitreous had disappeared with a funnel-shaped displacement of the retina, and accumulation of blood and albuminous, colloid or other, fluid between the sclerotic and choroid.

In two cases, besides the above changes, bone formation had occurred on the inner surface of the choroid.

In three cases the choroid was also displaced inwards.

In one the sclerotic had given way after repeated injuries, and the blood accumulated between it and the choroid had escaped beneath the conjunctiva; and in another there was a thick layer of fibrine deposited on the sclerotic and choroid, bands of which stretched across an accumulation of fluid blood.

The injuries inflicted upon the eyes were, in the above cases, one or more blows. In one case there was hemorrhage from the outer (sclerotic) surface of the choroid, with funnel-shaped displacement of choroid and retina, and loss of vitreous humor after extraction of cataract.

The operation has been performed for acute inflammation of the globe. It had been perforated by a chip of steel, or by some other cause, in six cases, in which a short time before excision the vitreous space was occupied in these cases by pus and yellowish transparent fluid, and the choroid and retina were infiltrated and surrounded by inflammatory products.

* *On Excision of the Eye,* on abscission of the portion of the eye anterior to the ocular insertion of the recti; and on operations necessary for adapting the soft parts of the orbit, when granular and contracted, for the reception of a glass eye, with some remarks appended, on the wearing, change, etc., of glass eyes, by Mr. Gray (manufacturer of glass eyes to this Hospital).

In one case the lens had been broken to pieces, which then were found on the inner and upper surface of the hyaloid (*ora serrata*).

In six cases, eyes which were considerably shrunken, "stumps," have been excised; in four of them the sclerotic, cornea, optic nerve, etc., were proportionately reduced; in two, an attack of inflammation with pus formation in the vitreous space, had occurred.

In another case the repeated attacks of pain appeared to be due to a neuroma of one of the ciliary nerves (see "Published Cases, Case X)."

In one case the retina was displaced inwards only on the side at which the globe had been perforated (ciliary processes); and the remainder of the retina was transparent and in apposition with the choroid.

In one case the eye had been perforated by small shot, which passed out of the globe near the entrance of the optic nerve; blood clots were suspended in the yellowish vitreous, the sclerotic, choroid, and retina were in apposition, and the globe had shrunk to about one-third of its normal size.

In one case only the choroid, sclerotic, and cornea were left, and a small vitreous space was filled with yellowish fluid.

Excision of the eye has been performed in sixteen cases for *staphyloma*, ten of which occurred after purulent ophthalmia; the staphylomatous state in most cases being confined to the situation which had been occupied by the cornea.

In six cases the staphylomata were concomitant with other pathological changes of the globe; the place of the retina was occupied by transparent tissue, the vitreous and aqueous spaces by transparent fluid. The *posterior* portions of four of the globes were also staphylomatous. Fistulous openings in one of the anterior staphylomata were observed, etc.

Excision of the eye has been performed for *glaucoma* in eight cases. These eyes had been blind for a considerable time. The retinal elements, except the rods and vessels, had disappeared, and in most of the cases their place was occupied by very numerous large colloid globules.

One glaucomatous globe was excised on account of the severe pain which followed the excision of a portion of the iris (some vitreous had in this case been lost); portions of the choroid near the entrance of the optic nerve were dis-

placed inwards by blood, which had escaped from the outer choroidal surface, between the sclerotic and the choroid.

Excision of the eye has been performed in five cases, for *cancer*, and in one case for *tubercular deposit*.

1. (Epithelial) cancer, encroaching from the lids on the sclerotic, and perforating it from without.

1. (Medullary), growing from the outer and upper surface of the cornea; the interior of the globe being normal.

1. (Fibrous, *for the most part*), growing from the lower part of the sclerotic near the ciliary processes into the globe; perforating (?) the choroid, and displacing the retina inwards, the exterior of the globe being normal.

2. (Melanotic), one of them appearing to have originated in the ciliary processes (it had perforated the globe, and displaced the retina); and in the other it seemed to start from the choroid near the yellow spot (it filled the globe).

One case of tubercular deposit into the ciliary processes and sclerotic (perforation). The vitreous space was occupied by a turbid, membranous fluid; the retina was slightly milky. The patient (a girl) has also symptoms of consumption.

Excision of blind eyes, which by their presence appeared to *interfere with the use of the fellow eye*, has been performed in nine cases.

One case of spontaneous inflammation of one eye several weeks after extraction of cataract from the other. Disappearance of the vitreous, funnel-shaped displacement of the retina, etc., were found in the excised eye.

One case of malformation of some of the internal parts. Persistence of the central canal, membranous compartments in the vitreous space, etc.

Two cases of simple atrophy of choroid and retina.

Two cases of (so-called) granular retina, with numerous apoplexies.

Two cases of fluid vitreous. In one of them with displacement and adhesion of the lens to the hyaloid.

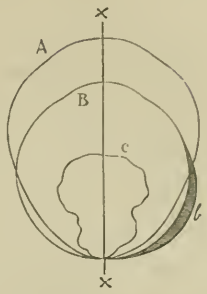
One case of spontaneous inflammation with extensive colloid changes in and on the choroid.

The instruments, etc., used for excision, are a wire speculum, a strabismus hook and scissors, a curved pair of scissors, and a forceps. Mr. Dixon uses the curved scissors and forceps only, which shortens the operation.

The operation of excision is rendered somewhat difficult.

When the eyeball has become altered in shape,—

The sclerotic behind the ocular insertion of the recti becomes uneven, furrowed, its longitudinal axis shortened, and its surface not unfrequently adherent to the soft parts, which surround it. This change is not uncommon in eyes which have been lost by injury.



In one case the palpebral aperture had to be enlarged in order to remove a small uneven stump from its surrounding adhesions. (*Diagram, C.) The injury had occurred twenty-three years previously in this case.

The eyes, which were enlarged anteriorly, have in no instance offered material difficulties to the present mode of excision; but it occasionally happens that some posterior portion of the walls of the globe, which is not seen, has become staphylomatous (frequently between the ocular insertion of the obliqui), or that, by some change in the sclerotic, choroid, etc., round the optic nerve, thinning of these coats has occurred, which, in consequence of the pressure of the recti, gives the globe an egg-shaped appearance. (Diagram, A.) These projecting portions may be cut into when the optic nerve should be divided, and as the vitreous space is generally occupied by fluid, it may escape by the posterior aperture, and excision of the collapsed globe becomes tedious.

Posterior staphylomata may be suspected in anteriorly enlarged staphylomatous globes of long standing. The egg-shaped globe is observed in short-sighted persons.

The sclerotic of acutely inflamed globes (pus in the vitreous space) after an injury or during rapid development of cancer, within the eye, is covered by inflammatory products, and the soft parts surrounding the globe are matted together, infiltrated, and adherent to the latter. (Diagram, B, b.) In one case of cancer the anterior portion of the eye appeared smooth, and in a similar position to that of the fellow eye; but the sclerotic had been perforated near the yellow spot, and the obliqui and soft parts round the optic nerve were infiltrated, etc.

* XX Represents the supposed antero-posterior axis of all the (typical) globes difficult of excision.

When the optic nerve is cupped.—

As in glaucoma, and in some diseases of the vitreous space, with general enlargement of the globe. The cup, in the nervous substance, sometimes extends in depth to a level with the sclerotic, and, if the optic nerve is divided close to the globe, it gives way, and allows the contents of the vitreous space to escape.

The globe has also been seen to give way during the operation of excision, and the contents of the globe escape through an ulcer in the cornea.

The bleeding after the operation soon subsides; the palpebræ are kept open with the wire speculum. A stream of cold water is allowed to run into the cavity and over the conjunctiva, as long as the blood oozes out (from five to fifteen minutes), when the speculum is removed.

It happened in one case, that after the optic nerve had been divided, the speculum slipped out, and in an instant such a quantity of blood was poured out into the subconjunctival tissue, that it prevented the lids closing. The blood had disappeared after two days.

Mr. Bowman and Mr. Critchett sometimes close the conjunctival aperture by a thread, which is several times passed in and out round the margin of the aperture, and drawn together, when all the bleeding has ceased (and this is sometimes troublesome when the effect of the chloroform has subsided). The thread is generally removed on the third day.

In a few cases a small granulation appeared some weeks after excision, in the conjunctival aperture; it was removed with scissors.

B. Abscission of *staphylomata* has been performed four times.

The enlargement had in these cases followed purulent ophthalmia with sloughing of the cornea, and remained confined to the position which had been occupied by the cornea. The after-treatment of these cases of abscission is very prolonged.

Mr. Critchett modified the operation in three cases, by dissecting the conjunctiva back from the margin of the staphyloma, as far as he wished to abscise the globe; he then passes threads through the conjunctiva, which, after the staphyloma had been abscised, were drawn together so as to transform the aperture in the globe into a transverse slit, and by these means the cut edges of the sclerotic and conjunctiva were kept in apposition, and the further escape of vitreous, etc., prevented.

Two of the cases were lost sight of: in one of them some inflammation followed the operation; and in the third case, the wound healed in a fortnight, leaving a good moveable stump.

C. Two cases of *narrowing of the orbital aperture* by bands of fibrous tissue have been operated upon.

In one case the eyelids were dragged inwards by the newly-formed tissue, which sprang from the conjunctiva of the orbit. The inner aspect of the lids was freed with the knife, and a small glass mask inserted, to prevent their reunion. A fortnight afterwards the mask was removed for an artificial eye. The orbital tissue had, two months later, again contracted to such an extent, that the glass eye could not be worn any longer.

In the other case, a thick fibrous band, stretching from one canthus to the other across the orbit, prevented the insertion of a glass eye.

Mr. Bowman divided this band transversely, at two points, and brought the cut edges together with sutures, thus preventing their reunion. The soft parts of the orbit were thus freed, became more elastic, and the patient could wear a glass eye a week afterwards.

The appended remarks on the adaptation and use of Artificial Eyes are from notes by Mr. Gray, the manufacturer for the Moorfields hospital.

The artificial eye can be introduced in a week after the operation, but care must be taken that it is not too large, the object being at this time just to keep the lids in proper position. If the insertion of the eye has been long delayed it should be at first left in for two days, and a larger one can be worn on the third day. Should this then cause any irritation, uneasiness, or increased discharge, it must be taken out, and replaced by the smaller one, until the former can be borne. Generally in about ten days or a fortnight the proper size can be inserted, though sometimes it can be done in a week. When the proper eye has been fitted the patient should be instructed to take it out every night before going to bed, and sleep without it, the eye being placed in a small box till the morning.

The following rules (which have been printed) are then given to the patient for his guidance:

To take the eye out.—The lower eyelid must be drawn

downwards with the middle finger of the left hand, and then, with the right hand, the end of a small bodkin must be put beneath the lower edge of the artificial eye, which must be raised gently forward over the lower eyelid, when it will readily drop out; at this time care must be taken that the eye does not fall on the ground, or other hard place, as it is very brittle, and might easily be broken by a fall.

To put the eye in.—Place the left hand flat upon the forehead, with the fingers downwards, and with the two middle fingers raise the upper eyelid toward the eyebrow; then, with the right hand, put the upper edge of the artificial eye beneath the upper eyelid, which may now be allowed to drop upon the eye. The eye must now be supported with the middle-fingers of the left hand whilst the lower eyelid is raised over its lower edge with the right hand.

After it has been worn daily for twelve months the surface of the artificial eye becomes rough; when this happens, it should be replaced by a new one, for unless this is done uneasiness and inflammation may result.

Though there are patients who have worn the same eye for eighteen months or two years before a change is required, sometimes they are worn out in much less time, six months for instance. It appears that the enamel of the artificial eye is acted on, in some way, dependant on the chymical composition of the secreted fluids.

It occasionally happens, after sometime wearing the eye, or from the patient taking much exercise, or being exposed to drying winds or heated atmosphere, that the mucus dries on the artificial eye in a line corresponding with the palpebral aperture. These layers of mucus increase and the tears are not able to clean the surface of the eye; the inner aspect of the eyelids thus passes over a rough substance which sets up irritation. In such a case the eye should be placed in a glass of water on going to bed and left till the morning, or the dried secretion can be washed off with a little sulphuric acid and water (one part of acid to five of water).

If the printed rules are followed out, no sinking of the artificial eye takes place after it is properly fitted; and experience of the last four years rather shows that the eyelids then continue to assume a more natural appearance. Large orbital apertures are cosmetically the most unfavourable for wearing artificial eyes; the smaller the orbital aperture the more complete is the cosmetic effect.

If the operation has been followed by much infiltration of blood or by inflammation; it does not appear that the final result is impaired, but these patients are obliged to wear a small eye for a considerably longer time.

There are cases, in some of which a foreign body has passed through the globe (small shot, etc.) and, perhaps, become lodged in the orbital tissues, in which the discharge continues for an undue time. In these cases the best plan is to let the patient wear a small artificial eye, and to wait until the discharge has considerably decreased before a larger one is fitted.

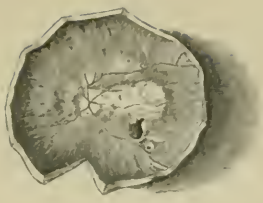
No case has occurred in which the breaking of an artificial eye, while in the head, is known to have caused any serious injury.

The cosmetic result is most perfect for motion, when a stump is left for the artificial eye to rest upon; but, if a transparent cornea remains, the irritation, caused by the artificial eye, is so great that it makes it desirable to remove the cornea.

Cases are occasionally found in which a band of thickened conjunctiva stretches from one angle to the other, narrowing the palpebral aperture and thus gradually expelling the artificial eye. In other cases, granulations spring up from the conjunctiva; they have been seen to fill the orbit, so as to prevent, altogether, the patient's wearing an artificial eye. These accidents can be traced probably to three principal causes: first, that the patient has not followed the instructions for the removal of the eye; second, that he has not exchanged it for a new one in due time; and, third, that giving way to the wishes of the patient, a somewhat larger eye than is proper for the case has been fitted.

If a complication with entropion or ectropion, or any other malformation of the lids exists, it ought to be remedied before an artificial eye is inserted, because the effect of the lids on it is, in some degree, the same as on a normal eye, that is to say, irritation, discharge, and loss of transparency.

When the globe has been *excised* it is still a desideratum that some artificial support for the artificial eye should be found: Mr. Moon, the late House Surgeon of the Royal London Ophthalmic Hospital suggested artificial eyes, with the edges inverted. Such eyes succeeded in removing the sunken appearance, but in the course of time caused irritation and accumulation of discharge.



The case (Plate VII., B 1, B 2 *a*, B 2 *b*,) has been given at length in the third Number of the Journal, pp. 119–121

It should be remembered that the retinal and choroidal elements are destroyed to the extent of the white patch and that their place is occupied by transparent (brown) pigment sprinkled tissue, which adheres to the thickened and white sclerotic. The black well-defined patches are due to some change in the hexagonal cells, which at these places are filled with black pigment granules, and overlaid (retinal surface) by clusters of irregular black cells (misshapen hexagonal cells ?).

Whether this results from a slow process of inflammation of choroid, sclerotic, and retina, or be one of simple atrophy, it is certain that, whatever therapeutical treatment might be adopted at this stage of the disease, the elements necessary to vision are destroyed at the white patches.

The appearance of the boundary of these white patches is diagnostically important, inasmuch as the amount of choroidal red, in these cases, indicates the state of the corresponding retina. The original sketches of this case are anatomically and artistically true representations of the ophthalmoscopic appearances; but the lithographic figures are in some respects incorrect.

The woodcut at the top of this page is a representation (of the natural size) of the fundus of the right eye after excision. Compared with the ophthalmoscopic views (B 2 *a* and *b*) all parts are, of course, reversed; it also shows in *one* view the small size of the parts only to be seen in *two* views by the ophthalmoscope, and how little is really included by the limits of ophthalmoscopic vision.

PLATE VII.

A, 1. Apoplexy of the choroid (?) and retina about the (right) *optic nerve entrance.* See case (Published Cases) XVIII, pp. 267–9.

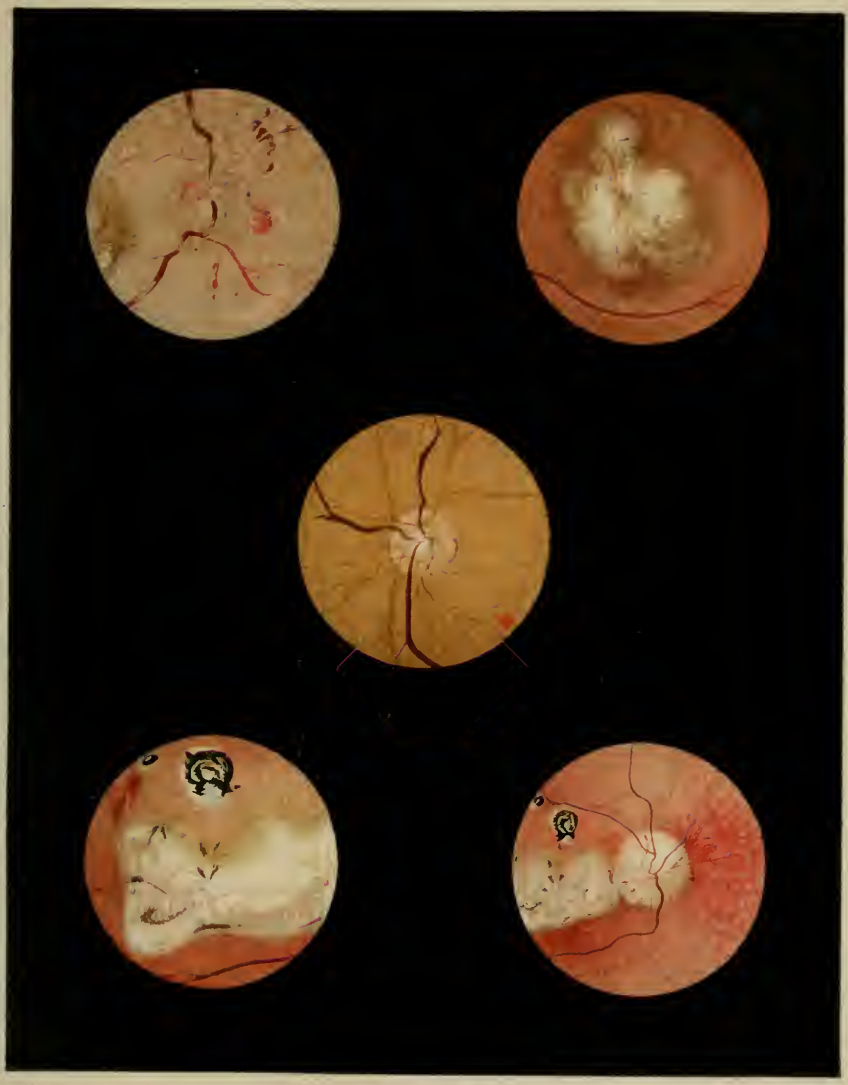
A, 2. *The same case* (XVIII) about the (right) *yellow spot.*

B, 1. The left (best) eye, about the *optic nerve entrance,* of the case referred to on the preceding page (over leaf).

B, 2, *a.* The right (excised) eye, about the *yellow spot of the same case.*

B, 2, *b.* The same eye, about the *optic nerve entrance of the same case.* See the preceding page (over leaf).

In the two last sketches, two black patches are seen in each, but differently placed in relation to each other and of different sizes (see wood-cut, *over-leaf,* of the *actual* size of the parts), those in the most *direct* view of the parts being the most magnified.



GENERAL INDEX

TO THE FIRST VOLUME.

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